ANNALS OF INTERNAL MEDICINE

VOLUME 20 MAY, 1944 NUMBER 5

PRESIDENT'S ADDRESS *

By JAS. E. PAULLIN, F.A.C.P., *Atlanta, Georgia*

WHEN the Board of Regents deferred the annual meeting of The American College of Physicians, which was to have been held at Philadelphia in 1943, the Officers, Regents and Governors were requested to hold over until such time as it would be possible to have either a regular or a business meeting. This gathering is a combination meeting which permits a short scientific session devoted entirely to problems of military medicine and furnishes an opportunity to those of us who have been "frozen" to become "thawed out." You have elected new officers and are now ready to consider plans and receive suggestions for the future activities of The College.

As your unfrozen and now retiring President I wish to take this opportunity of thanking the Board of Regents, the Board of Governors and, in particular, Mr. Loveland and his very efficient office force, for the great help they have been during my term of office. Circumstances over which I have had no control have made it impossible for me to attend many of the Regional and State meetings. In denying myself this privilege and pleasure it was thought that all available time should be given in furthering every effort for the successful prosecution of the war and that these activities should have precedence over everything else. With this explanation I wish to report directly to you some of the major activities of The College which have occurred during the past two years, and to outline very briefly what planning has been done for our future participation in the medicine of tomorrow.

Since the annual meeting in 1942 we have elected to Associateship 354 members and to Fellowship 350 members, giving a grand total of 704 additions to The College. We have lost by death 116 Fellows and 18 Associates, and for other causes 27 have been dropped from membership. As of March 7, 1944, our membership consists of 4 Masters, 3,987 Fellows, 1,120 Associates, giving a grand total of 5,111, which is 2,000 more members

* Delivered at the meeting of the American College of Physicians, Chicago, Illinois, April 1, 1944.

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than when The College met in Chicago in 1934. The average age of this membership, including Fellows and Associates, is 49 years. We have given 1,630 to the military services, which is 32 per cent of our membership—a contribution of which we can be proud from a small organization such as this. We have (1) waived the dues in full of all members on military duty. (2) We have reduced the initiation fee of all members on active military duty from $80.00 to $10.00. (3) We have offered the ANNALS OF INTERNAL MEDICINE to all members in the military service for a yearly subscription of $6.00, which is the cost of production. The loss of income to The College from these waivers and reductions will amount to approximately $20,000 yearly. (4) The College has contributed $10,000.00 for the support of the War-Time Graduate Medical Meetings. (5) The standards for admission to The College have not been lowered but, realizing the fact that many Associates on military duty would not be able to qualify for Fellowship in the required length of time, the Board of Regents extended the five year Associate term for such military members by as long a term after the war as they have served on active duty. Such an arrangement permits the Associates, after demobilization, to either become established in private practice, or to engage in other medical work which will allow them to qualify for certification. It is interesting to know that of all new candidates approximately 80 per cent qualify for election, and 83 per cent of the Associates qualify for Fellowship. It is a source of great satisfaction to know that despite our loss in income from the waiver of dues and reduction of initiation fees, the circulation of The Annals has increased from 5,461 copies per month in January 1942, to over 6,000 copies per month.

After the postponement of the annual meeting scheduled for 1943, the Board of Regents thought it wise to encourage Regional Meetings to be participated in by neighboring states and thus maintain the functions of The College, representing, in an abbreviated pattern, our annual clinical sessions. During 1943 thirteen Regional Meetings were held covering all parts of the United States with the exception of the far southwestern states and the Dakotas. The attendance at all meetings was approximately 3,000 physicians. Arrangements for other meetings are being scheduled for 1944 and these may surpass the success of those of last year. The local committees responsible for the one-day programs were most successful in selecting subjects of particular interest in national defense and in securing speakers who were gifted as teachers and many of whom had just returned from combat zones. Through these meetings the scientific and educational part of our program has been maintained and the personal, friendly relationship of our membership encouraged.

Despite the great demands which have been made on our teaching institutions and our medical colleges and the shortage of faculty members (many have joined the military forces), we have been able to continue our postgraduate courses begun several years ago. During 1942 three courses were

given with an attendance of members and non-members of 140. In 1943 six courses were sponsored, which were attended by 300 members and 107 non-members, making a grand total of 546 in attendance for the two years. For 1944 three courses are already planned, which will accommodate approximately 160 physicians. Undoubtedly they will be filled within the next few weeks. This type of instruction has already proved to be of tremendous value and it is my belief that every effort must be made to continue it.

From the experience gained in this field of postgraduate education and with the assurance of the benefits that come from such instruction, it was thought that if this type of teaching could be made available for those in the military services it would be worth our effort. As a result of this desire there has been established the War-Time Graduate Medical Meetings sponsored by The American Medical Association, The American College of Surgeons, and The American College of Physicians. A committee, composed of Drs. Edward L. Bortz, Alfred Blalock and William B. Breed, has organized a most distinguished group of consultants and one of the largest and most enthusiastic faculties ever engaged in a teaching program in this country or anywhere else. Since the beginning of this activity in 1943 the program has grown in size and usefulness until today it is almost a physical impossibility for our large groups of teachers to fill all requests which come for this type of instruction. Before the end of the present year it is my belief that the personnel of every military hospital in this country will have participated in one or more of these postgraduate meetings. The successful operation of the War-Time Graduate Medical Meetings is due, in great part, to the hearty coöperation which has been received from the offices of the Surgeons General of the Army, Navy and Public Health Service. They not only have approved the type of instruction which has been given, but they have also made it possible to utilize many of their physicians together with our own members in giving ward rounds, lectures, round-table discussions, clinical and pathological conferences at military installations.

Our Committee on Post-War Planning, coöperating with similar committees from other organizations that are equally interested in medical education, medical service and medical care, is making progress in unraveling some of the problems which will face us when the war is over. From all indications it will be several years before hostilities will cease. We must, therefore, plan for an increasing and intensifying struggle before there can be any relaxation from the strenuous and anxious days and months which lie ahead. No one can foresee or foretell all of the changes which the war is going to bring to our methods of living and thinking. It is quite obvious that there will be many changes of an evolutionary nature. Let us hope that there will be no revolutionary ones. As a matter of fact many changes are being made in civilian life, and these will undoubtedly increase as the days pass. The Post-War Planning Committee is exploring these changes and attempting to have a suggested solution for many of the problems which will affect the future of The College and the future of medicine.

Changes in medical education, as a result of the adoption by the Army of the ASTP program and by the Navy of the V–12 program, together with the accelerated instruction of medical students and the adoption of the 9–9–9 formula for internes, assistant residents and residents, all of which has been made necessary to supply the immediate needs of the armed forces for physicians, have disrupted the educational training program of practically all medical schools. Yet it is surprising to see how well this type of training is succeeding at the present time. It is granted that a long continuation of such intensive instruction, with a diminished teaching personnel, cannot be maintained at its present state of efficiency unless additional teachers are provided for our already depleted faculties. I am quite sure that such thoughts as I have expressed are in the minds of those of our responsible military leaders who are planning for the effective training of the medical students and the recent graduates who must assume much of the responsibility for the care of our soldiers and sailors, as well as for the civilian population. The low mortality and morbidity from disease and battle casualties is a great tribute to the previous medical training and experience of our physicians who bear this responsibility, and under no circumstances must we allow these standards to be lowered.

The Committee on Post-War Planning is also giving consideration to some of the problems which will directly concern members of The College, as well as members of our profession after the war is over. When it is realized that by the end of 1945 there will be in the military service approximately 20,000 physicians who have never engaged in the private practice of medicine, that with a continuation of the war this number will steadily increase, and that many of this number will have had only twelve months of hospital training, it is apparent that some provision must be made to give those who desire it additional training either as assistant residents, or residents, as well as providing for the older age group refresher courses to be given in general medicine or in some of the specialties, before the physician again enters private medical practice. With the coöperation of the Council on Medical Education and Hospitals of the American Medical Association, the Association of American Medical Colleges, The American Hospital Association, and the Catholic Hospital Association plans can be made to meet many of these demands. Facilities offered by these groups, together with those which are available in general hospitals of the United States Army and Navy, will almost supply the actual need of this type of training. Our Committee will undoubtedly explore these possibilities as they relate to the training of those in internal medicine and its relationship to the American Board of Internal Medicine.

The Post-War Planning Committee of the American Medical Association, of which our Committee is a part, is circularizing many members of the Medical Corps scattered in all parts of the world to obtain an expression from them of what they wish to do after demobilization. When this information is received it is proposed to establish a central bureau of information which

will be of help in handling the problem of relocation and redistribution of physicians over the United States. The services of this bureau will be available to physicians, but it also can be made of considerable value in furnishing information to communities desiring certain types of medical service. Through the service of such an agency it will be possible, in some measure at least, to prevent the concentration of physicians in our larger cities by encouraging small towns and communities to provide the necessary facilities for the modern, well trained physician to establish himself in that locality. The success of such a program as this depends not only on the coöperation of the medical profession but it will also require the hearty support of other groups interested in giving the best type of medical care to the smaller communities and towns of our country.

One can be proud of the part which The American College of Physicians is assuming in its all-out war effort. Not only is it a small group of highly trained men in Internal Medicine, which has given largely of its membership to furnish the best of medical care to members of the armed forces, but many more of our members are participating in research and other voluntary services on the home front, which have to do with problems of national defense. Therefore, we are assuming our part in the successful prosecution of the war but we are also preparing to participate in the establishment of a permanent peace.

It is too bad that we, in this country, who are fighting a war on all fronts for the survival of free men, are seemingly losing faith in the very fundamentals which we as individuals and as a nation claim as our birthright. Our real strength lies in individual freedom, which we consider a God-given heritage. Liberty and freedom represent the foundation stones upon which we have erected our present national existence and which we hope to make available to others. Much unrest exists; the newspapers, the radio, and the commentators carry so much news of cruelty, of strife, of killings, of intrigue, and general distrust among nations and individuals. Everything is seemingly turmoil and dissension. Nothing pleasant or peaceful makes the headlines. Such propaganda undoubtedly has its effect on the thinking and behavior of the public. Such cannot long continue and we, as a people and as a nation, maintain our sense of justice and fairness to ourselves and other nations. We of the medical profession have never been parties to this kind of thinking or manner of procedure. Yet, within our own ranks, there can be seen, among some, a beginning of this almost universal distrust of one's fellowman. Our College membership, standing for the highest principles of medical education, scholarship and training, interested in the quality of medical service, may be able by example to show the way through truth and righteousness to a distrustful world by helping to formulate methods of living in keeping with the fundamental principles upon which our Government was founded and upon which we as a Nation have reached our present state of usefulness. "We must needs practice freedom while we fight for it, so that in the end when peace comes we shall not have forgotten."

AMERICAN MEDICINE IN WAR AND PEACE*

By Ernest E. Irons, M.D., F.A.C.P., *Chicago, Illinois*

We are at war and every power of the College of Physicians is mobilized in assistance of the war effort. We accept without question the limitations on medical and other activities made necessary by the exigencies of war. Our first consideration is the winning of the war; our present effectiveness, however, is conditioned by our educational preparation in past years.

Throughout its entire history, the purpose of the College of Physicians has included the improvement of standards of education and of the quality of performance of physicians. Our annual meetings have been primarily educational. Fellowships and awards have been established for the promotion and encouragement of research. The College financed the organization of the American Board of Internal Medicine as a joint effort of the American Medical Association and the College. This and other educational projects together with funds appropriated by the College made possible the compilation a year before Pearl Harbor of lists of qualified physicians, which were of great assistance to the Surgeons General in their problem of organizing the tremendous expansion of medical personnel of the armed services in 1941 and 1942.

More recently "Wartime Graduate Medical Meetings" have been arranged as a combined effort of the College of Surgeons, the American Medical Association and this College, and thus far have been financed jointly by the three organizations. These meetings carried on by committees in some 24 regions of continental United States with a national faculty of distinguished leaders in special fields have been astonishingly successful and promise to be of still greater assistance to the Armed Services and to the hard pressed doctor at home during the coming years. Much of the success of these meetings should be credited to the regional committees on which the Governors of the College are largely represented. Our efforts in this program have been greatly facilitated by the whole-hearted coöperation of the Surgeons General and of the Commanding Officers in the Naval Districts and Service Commands. The course of the College in the war effort thus seems well defined—that of enthusiastic and full coöperation with our military leaders.

And this brings us to a brief consideration of post-war planning and the part which American Medicine must take in the changes that will come after the war. Whether we seek it or not, whether we like it or not, there will be profound economic changes in the wake of this destructive global war. I doubt if anyone here or anywhere can predict just what course those economic changes will take. They are inevitable, but wise counsel can guide

* Inaugural Address as President of the American College of Physicians, delivered before the Annual Dinner Meeting, Chicago, April 1, 1944.

them. Whatever economic changes come, medicine will feel their repercussions and must be prepared. I have always been much impressed with a paragraph by Dr. Seelig in his lectures on medical history:

"Medical history as an entity or separate discipline has no existence. Its course is dependent upon, and modified by plague, famine, war, prosperity, peace, invention, adventure and discovery. Medicine trails along a handmaiden of the times, serving with blessed benevolence but usually in no greater degree than the times permit; blossoming as the minds of men are stimulated into both activity and receptivity, and languishing in the shadows of decadence that fall, just once so often, across the world."

Medicine in continental Europe faces one of these dark periods of decadence, and we here who have scarcely felt the impact of war must do our part to see that the torch of medicine is kept burning in the world.

Medicine is directly affected by economic conditions, both local and national. Up until now the principal post-war planning agencies all predicate in their arguments, the necessity of full employment and maximum production, and the guarantee of the two Freedoms—Freedom from Want, and Freedom from Fear—to everyone. Although we may doubt whether such a Utopia is fully realizable, the great danger in all this is that too many will assume another and fatal freedom—Freedom from the necessity of hard work for everyone. While I wish to confine this reference to the medical problems of the future, it should be noted that the same principles apply to the law as to medicine, and indeed to the activities of all citizens.

We all agree that bad living conditions in the slums of our cities must be corrected; opportunity to improve their position in life must be provided for the poor; measures must be taken to avoid the exploitation of the weak and ignorant; and provision must be made against the accident of catastrophic illness and unforeseen misfortune. Various types of voluntary individual and group hospital insurance plans already have been developed so that at present there are approximately 20,000,000 to 25,000,000 persons protected against at least part of the economic tragedy of sudden severe illness. Guided by a sympathetic appreciation of the needs of the people, this voluntary system of protection may be expected to continue its amazing and gratifying progress. And this at a time when it is claimed that nothing is being done!

But these desirable ends will not be accomplished without stimulation of effort of those whose lot is to be improved. The average citizen is honest. He desires to do his part and will do it if he is not misled. Plans for social security if honestly administered will assist toward his protection against disability and old age. But human nature has not changed over the centuries, and there will always be a goodly number of loafers and riders, who are quite willing to get something for nothing. These will welcome a system whereby they may be carried free from want and fear, without contributing their share of the labor necessary to provide these freedoms. A

more serious effect, however, will be on that large group who under the stimulus of competition are now willing to work moderately and, though rarely excelling, do manage to get on, and provide for themselves a small competence for old age. For many of these, freedom from fear of want will result in a relaxation of effort and deterioration of morale. Freedom from fear of want will for them mean freedom from necessity of effort. To paraphrase an old adage—Competition is the life of growth and progress, both individual and national.

I am aware that a number of excellent and charming people including some highly trained medical men do not share this view and answer with the broad statement that to return to the social injustices of 20 years ago is unthinkable.

There have been many laudable social gains. To this we all agree. A comprehensive plan to prevent post-war unemployment is highly desirable, but it should be based on economic realities. This means hard work for everyone, and a decrease and not an increase in membership in the "Folded Hands Society."

Two loaves of bread are preferable to one, but those two loaves represent long hard work by many hands, including the efforts of the miner and steel worker as well as the farmer. Class distinction cannot enter.

Bismarck devised the first extensive system of state medicine, but he did it not through any love of the common people, but to attain certain political ends. It is hoped that the medical profession of America will not be subjected to a similar experiment.

In the recently proposed plan for socialized medicine, freedom from the necessity of constant effort, provided for the young doctor by a small but assured salary from the state, with slow increments after long years of service will result in "freedom" from initiative, "freedom" from the urge to do his best, and "freedom" from normal growth in knowledge and excellence of performance which constitute the great rewards and satisfactions of medicine. For the doctor and for the hospital in which he works, such a system instead of providing a new freedom will impose a fear of the bureaucracy which employs him, and to which the hospital is subservient. We must not put a premium on mediocrity.

In preparation for a still better post-war medical world, our 50,000 doctors returning from the war must be given a post-graduate period before or after discharge, during which the younger men can enter residencies and the older men have opportunity for individually planned instruction and study. This will insure the continued improvement of medical care of the public. Plans for this program are already under way by American medicine as a combined effort of the College of Physicians, the College of Surgeons and the American Medical Association. It is an Herculean task, but it becomes doubly necessary with the shortening of the medical curriculum. The young doctor, after a condensed medical course and an abbreviated in-

ternship, will return from his military service with no experience in private practice and without a clear understanding of the physician-patient relationship. He will need special guidance, lest he unwittingly accept inferior assignments under specious and unsound arguments.

The older as well as the younger men in the service abroad are already much concerned over the implications of impending legislation, and I get numbers of letters from former students asking what kind of regimented medical world they will return to, and whether there is any use in trying to prepare for the better things in medicine.

Our immediate effort is quite properly directed to the successful prosecution of the war, but it is evident that if the medical officer abroad knows that at home his ideals are being guarded and that adequate provision is being made for him on his return, his courage and morale will be better maintained during his military service. Questionnaires are now being sent to every medical officer in the services so that each can say what kind of training or opportunity he will wish. Codification of these answers will give the total overall requirements in residencies and other educational opportunities which must be supplied. The end of the war is still far distant, but our present planning for post-war peace will be as immediately helpful as was our pre-Pearl Harbor planning for war.

In our post-war medical America, American Medicine must lead. The program of "War-Time Graduate Medical Meetings" is a beginning of this united effort of American Medicine for the post-war period.

In planning, we must have in mind the American ideology: that of free enterprise, individual initiative and individual responsibility. American medical progress has been achieved in an American atmosphere by American individual effort. The central principle in American care of the American patient is the maintenance of the personal relationship of patient and physician unencumbered by the leveling influence of state regimentation and political control.

The same relation exists between the lawyer and his client, and only by the maintenance of this relationship can the ends of justice be served.

In the several regions of this country, economic, racial, and living conditions differ widely and require special local measures to meet them. This has been evident in medicine in the many experimental groups and health organizations which have been set up. Of the locally successful ones, one that works well in one region may fail in another.

There are numerous regions where by reason of crop failures, exhaustion of the soil by improvident methods of agriculture, or because of shifts in population from economic causes, the amount and quality of medical service are utterly inadequate. It should be noted also that in these same regions social and living standards, educational and recreational facilities, are also inadequate. The establishment of hospital centers with full-time state-paid physicians as an emergency measure may be the best solution of the present

exigency in such communities. It has been well said that you can't get a blacksmith to locate in a region where there is no shop and where there are no horses to shoe. The necessity for special treatment for such communities should not, however, be made the excuse for setting a pattern for the entire country, nor under the guise of medical relief attempt to foist a totalitarian system on the whole American public. No one blanket formula is adequate. Individualization is indispensable.

The physician seems to have been selected as the most vulnerable point of first attack. He may yet prove to be the most effective instrument in demonstrating to the public, in terms which the man in the street can appreciate and understand, the dangers and fallacies involved in state controlled medicine as a step toward totalitarian government.

American medicine has been untiring in its efforts to establish and maintain standards. The standards of medical practice of 1944 are much higher than those of 1914. During this period, methods of diagnosis and of cure of disease have advanced at a rate scarcely dreamed of 30 years ago. Pneumonia, referred to by Osler as the "Captain of the Men of Death" has at length been brought largely under control. Wounds previously fatal by reason of unavoidable infection, now heal promptly. These are only examples of the recent progress of medicine. The quality of service furnished by the family doctor in town and country has been vastly improved because he has had the opportunity of better medical education and hospital training, and has been able to keep abreast of medical advances. This increase in medical effectiveness has been a large factor in the outstanding quality of medical care of our fighting forces. And all of this has been accomplished under a system of free enterprise.

In post-war planning we must see to it that the achievements of the past are not swept aside by ingenious and untried doctrines, and that this planning shall utilize the accomplished gains of medicine and its enormously helpful potentialities of the future to provide still better care for the people. Evolution is constructive; revolution is destructive.

We may look forward to a continuation of the triumphs of medicine in improved cure of the sick and the alleviation of suffering, provided we maintain in America high standards of medical education, promote research, and continue the fundamental personal responsibility entailed in an unimpaired relationship of patient to physician under a system of free enterprise.

SALMONELLA INFECTIONS *

REPORT OF 37 CASES OBSERVED AT BETH ISRAEL HOSPITAL, NEW YORK, IN THE PAST FOUR YEARS

By Erich Seligmann, M.D., and Julius J. Hertz, M.D.,
New York, N. Y.

The frequency and clinical significance of Salmonella infections are not fully recognized everywhere. Two main reasons may be responsible for this fact. First, the bacteriological diagnosis of the organisms involved is not always an easy one. There are more than 100 different types, many of which can be accurately identified only in laboratories especially equipped with the many dozens of specific agglutinating sera of the somatic and flagellar type. Since more than 50 different sera are involved, and many must be prepared by specific absorption, this equipment is restricted to certain laboratories installed as Salmonella centers. However, many of the commoner strains may be readily identified in routine laboratories by use of the usual diagnostic sera, though many may be overlooked or misinterpreted. Second, except for typhoid fever and certain types of food poisoning, the clinical picture of Salmonella infections does not represent a specific clinical entity. Mild, often overlooked symptoms as well as severe forms of septicemia or localized inflammatory processes in any part of the body have been observed. The picture may simulate any of several common symptom complexes, such as gastroenteritis, cholecystitis, appendicitis, meningitis, pleurisy, endocarditis, osteomyelitis, etc. If one is not aware of the possibility of a Salmonella infection, one may easily miss the true diagnosis. In order to emphasize the varied clinical features it is intended to survey 40 instances of Salmonella infection in 37 patients observed in this hospital during the last four years, and bacteriologically diagnosed by the New York Salmonella Center attached to the Department of Bacteriology. Infections by *S. typhi* (typhoid fever) have not been included.

Since eight cases of Salmonella infection in children in this group have recently been reported by Bornstein and Schwarz,[1] this review is mainly concerned with infections in adults. Data on children are either additional or in reference to the cases already described.

Epidemiological Aspects

The 40 strains of Salmonella isolated belong to the groups A, B, C, and D of the Kauffmann-White table. They are listed as follows:

* Received for publication June 8, 1943.
From the Departments of Bacteriology and Medicine, Beth Israel Hospital, New York.

TABLE I

Types of Salmonella Strains Isolated from Patients at Beth Israel Hospital, 1939–1942

Group	Type	Antigenic Formula	No. of Strains
A	*S. paratyphi A*	I, II—a	1
B	*S. paratyphi B*	(I), IV, V—b, 1.2	1
	S. typhi murium	(I), IV, V—i, 1.2.3	18
	S. derby	(I), IV —f, g	1
C-1	*S. cholerae suis*	VI, VII—(c), 1.5	2
	S. virchow	VI, VII—r, 1.2	1
	S. oranienburg	VI, VII—mt, ..	4
	S. bareilly	VI, VII—y, 1.5	1
	S. montevideo	VI, VII—gm. ..	3
	S. amersfoort	VI, VII—d, enx	1
C-2	*S. newport*	VI, VIII—eh, 1.2.3	2
	S. morbificans bovis	VI, VIII—r, 1.5	1
	S. muenchen	VI, VIII—d, 1.2	1
D	*S. enteritidis*	IX —gm.	2
	S. panama	I, IX—lv, 1.5	1
	Total		40

One double infection was observed: *S. typhi murium* and *S. amersfoort* in the blood stream of the same patient. One triple infection including *S. virchow, S. bareilly,* and *S. morbificans bovis* was found in the feces of a butcher's wife who used to eat raw meat in rather large quantities.[2, 3, 4]

The strains were recovered, some of them repeatedly, from feces in 31 cases; from bile in two cases; from blood in four cases; from inflamed tubes in two cases; from lymph nodes in one case; from pus in one case; from peritoneum in two cases.

The *age distribution* of the patients shows a relative preponderance of young children in the B group owing to the prevalence of *S. typhi murium* in infants.

TABLE II

Age of Infected Persons and Salmonella Groups

Group	Under 1 Year	1–10 Years	Adults	Total
A	—	—	1	1
B	7	3	10	20
C	1	2	13	16
D	—	—	3	3
Total	8	5	27	40

The youngest patient was four days old, the oldest 71 years of age. The *seasonal distribution* of the infections is not characteristic as far as can be concluded from the relatively small number of cases. They were seen in all seasons. A slight accumulation observed in April was due to a limited

outbreak in one of the wards with six positive stool cultures. These infectious diarrheas of the newborn occurred in the maternity and nursery wards of the hospital, and were caused by an infection with *S. typhi murium*. Positive bacteriological findings involved two mothers and four babies. In this ward a series of diarrheal infections of newborns had been observed for several weeks. Stool specimens did not contain pathogenic organisms on repeated examinations. The picture fitted into the "epidemic diarrhea of the newborn" to which Frant and Abramson [5] have frequently drawn attention.

On April 10, 1942, however, *S. typhi murium* was recovered from a stool deposited on April 8. The patient was a seven day old male (M. K.) who had developed loose stools this very day and showed blood and mucus in the stool on the following day. A second positive stool culture, also containing blood and mucus, came from a four-day old female (F. G.) on the same day. Inquiries revealed that the 25 year old mother (S. G.) of the latter baby had had diarrhea with watery brown stools two days before. She had come to the hospital for delivery in good health, had a two year history of gall-bladder trouble, and delivered a healthy child on April 3. On the third day she developed fever and profuse diarrhea. Culture of stool showed *S. typhi murium*. The temperature dropped after two days, the diarrhea was halted one day later, but the stools remained positive until her discharge on April 14.

The ward was closed for new admissions. The patients were discharged as soon as possible. Through the coöperation of Dr. Abramson, stools from two of the discharged infants were sent to the laboratory; they revealed *S. typhi murium*. One of the babies (H.) remained well and developed no clinical symptoms, whereas the other one (G. G.), discharged in good condition on April 9, developed diarrhea on April 24. Stools were green and watery, but were always negative for blood. This baby was readmitted to the hospital on April 27 and left in good condition after 19 days, but remained a carrier of *S. typhi murium*. The healthy mother (S. G.) of this baby also carried *S. typhi murium* in her feces without clinical evidence of disease.

The source of this limited outbreak of *S. typhi murium* infection among newborns thus was traced to a mother-to-be who entered the maternity ward with a two year history of gall-bladder trouble. She was delivered and developed diarrhea two days post-partum. She obviously infected her child, and transmission of the infection to the other babies took place in the common nursery. Some of the infants carried the organism for several weeks before becoming ill, or without developing clinical illness. Furthermore, transmission occurred from one baby to her mother outside of the hospital. No deaths were observed.*

* Some years ago a small but very severe outbreak among infants was observed in this hospital, caused by *S. panama*, with four fatalities.[6, 7] Another outbreak due to *S. typhi murium* recently occurred in an infants' ward of a hospital outside of New York City. This, too, was very severe, with 17 sick infants of whom six died of generalized infection (personal communication).

It may be inferred that the gall-bladder disease of S. G. had something to do with the presence of *S. typhi murium* in her intestine, the gall-bladder being a notorious reservoir of enteric pathogens. The delivery in all probability activated the slumbering infection.

The outbreak had all the characteristics of a contact epidemic, transmitted by a human carrier. As far as the other Salmonella infections in this hospital are concerned, only one was definitely related to food. This patient fell victim to a food poisoning caused by smoked fish. Three other members of the same family were ill at the same time, and were hospitalized. The causative agent was *S. montevideo*. A possible relation to animal food may also be found in the case of the butcher's wife, mentioned above. All the other patients in all probability acquired their infection through human contact. Therefore, from the point of view of public health, it would not be warranted to neglect the search for a human carrier, as has been suggested [8] if strains of "animal origin" are involved. Many of these strains are today so closely adapted to human beings that such a difference should not be overestimated for practical and epidemiological purposes.

Clinical Aspects

Based on Observations in This Hospital

(*a*) *Three healthy carriers.* One adult woman, 30 years old, and one newborn with *S. typhi murium* in stools, were observed in the aforementioned outbreak. One woman, 43 years of age, who was known to be a carrier of *S. paratyphi A*, came to this hospital for treatment with sulfa drugs, but could not tolerate the drug.

(*b*) *Twelve cases of gastroenteritis in older children and adults.* In adults and older children, the gastroenteritis usually begins rather suddenly after a short incubation period varying from several hours to a few days. Chills, fever, diarrhea, cramps, nausea and vomiting were early manifestations of the disease. Severe headache was common. Stools varied from dysentery-like bloody stools to rice water stools, or loose semi-solid but frequent defecations. The acute phase was usually brief, lasting three or four days, but some cases were prolonged with continued fever. Blood and pus or mucus were seen in a few of the stools. Physical examination revealed acute illness and a diffusely tender, somewhat distended abdomen. Signs of mild respiratory infection were observed. Routine laboratory procedures were not of very great diagnostic aid. Sometimes an early transient leukopenia with relative lymphocytosis was seen. On the other hand, there were initial blood counts as high as 21,000 white blood cells with 88 per cent polymorphonuclears. The diagnosis rested primarily on early bacteriological examinations of stool and blood and on subsequent serological studies. Agglutination reactions were not always positive, particularly in the early stage, and in cases of short duration; some of the sera, however, agglutinated the homologous strain in high dilutions (1:3,200).

One death occurred in a patient in whom severe diarrhea accelerated the course of the primary disease, rheumatic fever.

Case 283. B. M., a 35 year old male, was admitted November 11, 1940, with chronic rheumatic heart disease in severe congestive failure. On the second day he developed a febrile reaction to a saccharine circulation time test and went into pulmonary edema. On the fifth hospital day his temperature rose again and he began to have diarrhea which resisted all efforts to control it. Stool cultures revealed *S. typhi murium.* The patient died on the seventh hospital day. Postmortem examination revealed rheumatic endocarditis and severe congestion of the lungs, liver, spleen and kidneys, but the bowel gave no evidence of enteric infection.

In these gastroenteric cases the following Salmonella types were isolated: *typhi murium* (5), *oranienburg* (2), *montevideo, newport, muenchen, enteritidis, panama.*

(c) *Eight cases of gastroenteritis in newborns and infants under one year.* The same variability of clinical manifestations held true in Salmonella infections of the newborn and the very young child. Usually the onset was explosive with high temperature and severe intoxication. Dehydration and rapid weight loss were prominent. Gastrointestinal, respiratory, and central nervous system signs appeared early. Diarrhea with frequent watery or loose greenish stools, with or without pus or blood, dominated the picture. Bacteremia was not observed. Enlargement of the spleen sometimes occurred and deep jaundice was observed (icterus neonatorum). The duration was very variable, but the acute phase was fairly brief. No fatalities were observed in this group of very young children. *S. typhi murium* (5), *S. newport, S. derby,* and *S. montevideo* were identified as the causative agents.

(*d*) *Four septic forms.*

Case 7. J. R., 40 year old male, was admitted March 1, 1939, with a seven day history of general malaise and headache, with profuse perspiration, and temperature fluctuating between 99 and 102.5° F. White blood cell count was 10,200. There was no diarrhea or other gastrointestinal complaints. The spleen was palpable two fingers'-breadth below the costal margin and the liver one finger's-breadth below. His fever subsided on the sixth day. Blood culture revealed *S. typhi murium* and *S. amersfoort.* Repeated stool cultures were negative, as were agglutination tests with his serum. Subsequent investigation revealed that the patient had had dinner with a relative who was suffering from intestinal "flu" one week earlier.

Case 537. H. M., a 10 year old male refugee, infected on a Spanish boat, was admitted September 20, 1940. He had periumbilical pain and fever up to 104° F. for three days with constipation and anorexia. The spleen was one finger's-breadth below the costal margin. Septic temperature was observed, gradually decreasing until the twelfth day in hospital. There were a few rose spots on September 23. *S. paratyphi B* was recovered from blood and stool. Agglutination with *S. paratyphi B* rose to 1:1,600. Sulfaguanidine was administered for 40 days, with cultures still positive after withdrawal of the drug.

Case 717. F. R., a 71 year old male refugee, was admitted April 23, 1942, with a nine days history of chills, fever, sore throat, and diarrhea for three days. Nine months previously he had had diarrhea and swollen legs aboard the ill-famed Navemar.

Temperature on admission was 103.6° F., with signs of pneumonia in the left chest. Because of the history, cultures were made and *S. cholerae suis* was repeatedly recovered from blood and stools. Temperature was characteristically septic until two days before death when his clinical picture suddenly changed. His respirations were labored; he became cyanotic and died with what appeared to be bronchial obstruction. Postmortem examination revealed a dissecting aneurysm of the thoracic aorta. Cultures of bile, blood and lymph nodes were positive for *S. cholerae suis*. Agglutination reactions increased during the course of the disease from 1:100 to 1:400 for the O-antigens and to 1:3,200 for the H-antigens.

Case 719. B. T., 37 year old female, four months pregnant, was admitted April 26, 1942, with a history of repeated episodes of severe shaking chills and fever up to 104° F. during the preceding 12 days. On examination, the spleen was palpable. Temperature fluctuated around 103° F. for several days, and on the fifth day she aborted. White blood cell count was 8,500. Stools were positive for *S. cholerae suis* and agglutination test: 1:400 for the same organism. One blood culture was negative. No gastrointestinal symptoms occurred.

(*e*) *Three cases simulating acute appendicitis.*

*Case 34.** A. C., 26 year old male, was admitted July 11, 1939, with a 12 hour history of severe abdominal cramps, vomiting and loose stools. Temperature was 103° F. There was tenderness over McBurney's point with rectal tenderness in the right side. Blood count showed 15,000 white cells with 91 per cent polymorphonuclears and 12 nonsegmented forms. Appendectomy was performed. Microscopic examination showed a normal appendix. Stool cultures yielded *S. typhi murium;* serum agglutination was positive to 1:200 dilution.

Case 538. D. G., 17 year old female, was admitted September 17, 1941, with a 48 hour history of cramplike pain in the epigastrium. She had taken a cathartic, and vomiting was present. Bowels were loose following catharsis. Within 12 hours, the temperature rose to 104° F. The pain subsequently localized in the right lower quadrant. On examination there was direct and rebound tenderness in the right lower quadrant with rigidity along the right flank. There was rectal tenderness on the right side. Appendectomy was performed and an ovarian cyst was punctured. Pathological examination revealed: "appendix in involution." Stool culture yielded: *S. montevideo.*

Case 660. L. M., six year old female, was admitted February 22, 1942, with a six weeks history of intermittent abdominal cramps, more severe in past 24 hours, associated with nausea and vomiting. Examination: Temperature was 101.2° F., there was right lower quadrant tenderness with right rectus muscle spasm. White blood cell count was 9,600 with 56 per cent polymorphonuclears. Operation revealed a normal appendix. Stool culture yielded: *S. oranienburg.*

(*f*) *Three cases of cholecystitis.*

*Case 32.** B. R., 55 year old female, was admitted July 8, 1939, with a long history of chronic cholecystitis, intolerance to fatty food, a recent attack of right upper quadrant pain repeated on the night before admission, and associated with nausea, vomiting and fever. Examination revealed abdominal distention and marked rigidity in the right upper quadrant. Cholecystography failed to visualize the gallbladder. On the third day she developed signs of pneumonia. Because of the relatively slow pulse (72), with high temperature, and the drop in white blood cell count from 18,500 to 3,050, the possibility of typhoid was considered. Stool and

* Previously reported by Kross and Schiff.[3]

blood cultures were submitted for bacteriological and serological examination. On the eighteenth day, there was an abrupt rise in temperature to 103° F., with an increase of the icteric index from 7 to 16.9 and white blood cells to 22,000. There was definite tenderness in the right upper quadrant. This episode passed in two days and was considered an acute exacerbation of her chronic cholecystitis. Duodenal drainage revealed *S. morbificans bovis*. The same organism associated with two other Salmonella types (*S. virchow* and *S. bareilly*) was found in 7 stool cultures. Blood cultures remained sterile. Agglutination tests for paratyphoid C rose from 1:100 to 1:3,200.

Case 262. F. S., 52 year old female, was admitted September 20, 1940, with an 18 hour history of right upper quadrant pain following dietary indiscretion. Examination revealed tenderness, rigidity and rebound tenderness in the right upper quadrant. Calculi were seen on roentgenographic examination. Icteric index was 33.8. Temperature was 100.8° F. on admission, and continued to rise. The patient looked poorly. Exploratory laparotomy was performed to discover a cause for the sudden change. The patient died shortly after operation. Postmortem examination revealed acute cholecystitis and cholelithiasis, obstruction of cystic duct, secondary pancreatitis, and localized peritonitis. A culture of *S. oranienburg* was isolated from the peritoneal fluid.

Case 878. Y. S., 42 year old female, was admitted September 14, 1942 with an 11 year history of repeated attacks of right upper quadrant pain and intolerance to fatty foods. Following a dietary indiscretion two weeks previously, she had had a typical attack of gall-bladder colic with vomiting. Roentgenograms revealed calculi. There was an associated history of recent alternating diarrhea and constipation. Cholecystectomy was performed, and characteristic cholecystitis and cholelithiasis were found. Stool cultures showed *S. typhi murium*.

The case of the mother (S. G.) who was found to be the source of the "outbreak" described may be placed in this group, since she had had chronic gall-bladder disease before, and in the course of her pregnancy, and shortly after delivery developed diarrhea due to *S. typhi murium*.

(*g*) *One case of peritonitis* (previously reported by Bornstein and Schwarz).

Case 6. M. G., an 11 month old female, was admitted February 19, 1939. She had been operated on five weeks before for intussusception; reduction had been performed. The child had fever between 101 and 104° F. for two days, was restless, and had projectile vomiting four to five times a day. There were three or four loose, greenish stools daily, with a positive benzidine reaction. There was a trace of acetone in the urine. Three days after admission the temperature rose to 105.4° F. There was slight distention of the abdomen. The following day the abdomen was tympanitic, seemingly tender. There was diffuse resistance, but no masses were felt. A tap in the left lower quadrant revealed pus, from which *S. typhi murium* was cultured. The temperature dropped immediately to normal after the paracentesis and the child was discharged much improved on March 6, 1939. At no time were pathogenic organisms found in the feces.

(*h*) *One case of localized abscess.*

Case 702. S. E., a 37 year old male, was admitted April 14, 1942, with fever and pains, for incision and drainage of an ischiorectal abscess. Two weeks previously he had had pain about his rectum, with chills and fever for a few days. Operation was performed. Culture of the pus revealed *S. enteritidis*.

(*i*) *Two cases of salpingitis.*

Case 1033. A. W., a 33 year old female, was admitted September 30, 1942, because of intermittent fever and right lower quadrant pain for the past year and a history of discharging foul pus with her bowel movements. After admission she developed fever and rash with petechiae. Pus was discharged through the rectum. The possibility of a perforation into the rectum was considered. Examination revealed a large tender cystic mass in the pelvis. Operation detected a chronic salpingo-oöphoritis with a tubo-ovarian abscess. A loop of ileum was adherent to the abscess; the cecum was intimately attached to the left side of the mass. After operation, the fever subsided quickly, and the patient recovered. In addition to various cocci and rods, *S. typhi murium* was isolated from the pus. Two subsequent stool cultures were positive for *S. typhi murium.* Agglutination tests for this organism rose from 1:80 to 1:320.

Case 1095. M. W., a 28 year old woman, was admitted March 17, 1942, with a three year history of pains in the left lower quadrant, which had become worse during the preceding two months. There had been no fever, and no gastrointestinal disturbances. Blood count was normal. On operation both tubes were found to be inflamed and thickened; there were numerous adhesions between both tubes and the ovaries, which were easily broken. A right paraovarian cyst was punctured. The cornual ends of the tubes were removed. From both cuts *S. typhi murium* was recovered in pure culture. Consecutive stool examinations after a period of some days of constipation were negative for Salmonella on three occasions. Agglutination reaction was negative 1:40 on March 20 and positive 1:80 on April 2. The patient had an uneventful recovery and was discharged on April 2.

Summary

A survey of 37 cases of Salmonella infections reveals the variety of symptoms which may be produced by these organisms.* Besides the more common form of gastroenteritis of a mild or severe type, septic conditions have been seen, as well as symptoms of cholecystitis, appendicitis, peritonitis, salpingitis and localized abscesses. Early recognition may be useful for diagnosis and general therapy as well as for the decision as to intestinal operations. Fifteen different Salmonella types have been isolated in this series of cases.

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* Since this paper was submitted for publication 9 more Salmonella infections were observed in Beth Israel Hospital. They involved 5 adults and 4 infants; causes were *S. typhi murium* (3), *S. newport* (2), *S. cholerae suis, S. oranienburg, S. tennessee* and *S. bredeney.*

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HISTAMINIC CEPHALALGIA AND MIGRAINE*

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Headache is a common symptom in all branches of medicine. Spriggs [1] studied the records of 4,796 consecutive patients and found that 500 (10 per cent) complained of headache as a major symptom. Despite this frequency in incidence, little is done in the way of specific treatment for these patients. Before adequate therapy can be instituted, it is essential that proper classification of the type of headache be made and that organic lesions, if present, be discovered.

It is the purpose of this paper to limit my discussion of headache to that of histaminic cephalalgia and migraine, and to point out the benefits obtained from proper classification and treatment in these patients.

Histaminic Cephalalgia

In April, 1939, Horton, MacLean and McK. Craig [2] reported a new syndrome of vascular headache which they found amenable to treatment with histamine. They suggested the term "erythromelalgia of the head" as a name for this type of headache because of the prominent feature of vasodilatation. In a later report [3] Horton substituted the terms "vascular headache" or "histamine cephalalgia" as a name for this syndrome.

The clinical characteristics of histamine cephalalgia are: (1) Absence of familial history of "sick" headache or allergic diseases; (2) onset most common in fourth or fifth decades; (3) short duration, frequently less than an hour, commencing and ending sharply; (4) hemicrania, usually; severe pain, constant, excruciating, burning, boring (suicide frequently contemplated); (5) usually occurs during the night (during sleep); clock-like regularity frequent; (6) eased by sitting up or standing erect; (7) associated with vasomotor phenomena consisting of lacrimation, congestion of the eye on the involved side, rhinorrhea or stuffiness of the nostril, increased surface temperature, and often swelling of the temporal vessels of the involved side of the head; (8) attacks are *frequent*, as often as 20 times a week; (9) compression of the common carotid and sometimes of the temporal artery, early in an attack, frequently gives prompt relief; (10) occasional nausea, no vomiting; (11) no aura; (12) no relationship to the menstrual period; (13) alcoholic beverages frequently precipitate attacks; (14) histamine 0.1 to 1.2 milligrams subcutaneously usually gives a typical attack of unilateral pain, identical with the spontaneous attack; (15) adrenalin 1 to 400,000 solution, intravenously, gives prompt relief; (16) cure by hyposensitization to histamine.

* Read at Regional Meeting of the American College of Physicians, Washington, D. C., April 24, 1943.

Horton [3] used histamine therapy in 184 patients whose primary complaint was headache. Of these, 72 (40 per cent) had histamine cephalalgia, 63 of whom were desensitized with histamine. Of 51 of these whose symptoms were typical, 48 had complete relief for varying periods of time after desensitization. The results of desensitization in the 12 atypical cases were excellent in five, and moderate in the others.

Because of the clear cut clinical picture, the apparent frequency of the syndrome, and the excellent results of treatment with histamine, we have carefully analyzed each patient with headache with a view towards proper classification. From January 1, 1942, to April 1, 1943, 71 patients with a primary complaint of headache were referred to the Allergy Clinic at Walter Reed General Hospital for study. Of these, only four presented the signs and symptoms of vascular headache (table 1). Fifty-two had typical migraine and the others had headaches due to miscellaneous causes, such as hypertension, anxiety states, etc.

TABLE I

Classification of Headaches

Allergy Clinic, W. R. G. H.
1942–1943

	No.	%
Migraine	52	73
Histaminic cephalalgia	4	6
Miscellaneous	15	21
Total	71	100

CASE REPORTS

Major M. D., a 48 year old army officer, was referred to the Allergy Clinic, Walter Reed General Hospital, on August 21, 1942. He had suffered from severe headaches for 26 years. The age at onset was 22 years. The headache consisted of a severe hemicrania in the right frontal area, and in and behind the right eye. It occurred almost every night and lasted from one to six hours. The headache was always nocturnal and recurred with clock-like regularity about one hour after he retired. He was awakened by the severe pain and had to assume the erect position. The recumbent position was intolerable during a headache. The onset and termination of an attack were sudden. There were no auras, nausea or vomiting.

The headaches had been continuous for the past 26 years with several periods of remission. In 1918 he had a six to eight month free period, following a hemorrhoidectomy. A 14 month free period followed a right frontal sinus operation. The longest headache free period was from 1937 to 1942 following the removal of all of his upper teeth. Every operative procedure caused a remission in the headaches.

Various medications including aspirin, gynergen and amytal had been tried with no relief. His personal and family history was entirely negative for allergy, including migraine. Allergic skin tests done by the intradermal method were entirely negative. Physical examination, including laboratory studies, was entirely normal.

A provocative test with 0.3 milligram of histamine subcutaneously failed to reproduce the characteristic headache. However, because of the typical history, histamine hyposensitization therapy was given from August 22, 1942, to September 11, 1942. The dosage was 0.05 to 0.10 milligram of histamine base given twice daily.

The response was dramatic. The headaches ceased entirely during the treatment, and when the patient was last heard from, on January 31, 1943, they had not recurred.

Private J. H., a 30 year old soldier, was seen in the Allergy Clinic, Walter Reed General Hospital, on July 23, 1942, with a complaint of headache. For four years, since the age of 26 years, he had suffered from a severe alternating frontal hemicrania. The headaches lasted two to three hours and recurred two or three times a week. They occurred at any time of the day, but more often at night when they would awaken him from sleep. He had noted that the head pain was less marked in the erect position. There were no auras or associated vasomotor disturbances. He had marked nausea but only very occasional vomiting. On two occasions he had diplopia lasting for about two hours. The usual analgesic drugs gave no relief.

His personal and family history was negative for allergy, including migraine. Ear, nose and throat and eye examinations were negative. He was seen by a neurosurgeon, who found no evidence of organic cerebral disease and felt that the symptoms were characteristic of histamine cephalalgia.

A provocative subcutaneous injection of 0.3 milligram of histamine reproduced the characteristic headache. Histamine hyposensitization therapy was given twice daily from August 11, 1942, to September 18, 1942, starting with 0.05 milligram and increasing to 0.10 milligram. The headaches ceased entirely during the course of treatment and had not returned when the patient was last seen on May 5, 1943.

Comment

Both of these cases are typical of the syndrome and were relieved of their symptoms by means of histamine hyposensitization. The first case reported has been free of headache for five months without recurrence, and the second case had no symptoms after eight months, when last seen. The other two patients with histaminic cephalalgia were 37 and 43 years of age. Both obtained complete relief with histamine hyposensitization treatment within three weeks. The latter patient has had mild recurrences unless kept on a maintenance dosage of 0.10 milligram of histamine given twice a week at first, and once a week at present. He is the only one of the four patients with vascular headache who required a continued maintenance dose of histamine.

The frequency of incidence of vascular headache in our smaller series was much less, 6 per cent as compared with 40 per cent in Horton's report. The age incidence of this syndrome is apparently most common in the fourth and fifth decades of life. The average age in our series of headache cases was 33 years, which may account for the markedly lower incidence.

In 1940 Yater [4] reported a case of histamine cephalalgia and commented on the infrequency of the syndrome, both in his practice and that of other experienced clinicians.

Migraine

For clinical purposes, the term "migraine" may be used to classify headaches which have the following characteristics: (1) Recurrent periodic hemicrania, (2) aura, usually cortical sensory disturbances, (3) nausea and vomiting, and (4) a family history of migraine or allergy.

Headaches are so common in many systemic diseases and psychosomatic states that it appears advisable to limit the use of the term "migraine" to those in which number (1) is present, and at least one of the other three.

Numerous authors [5, 6, 7, 8] have reported patients with migraine in whom definite allergic factors have been found, and their control, usually by food elimination, has resulted in improvement or cure. Unger [9] has reproduced migraine by injections of specific allergens.

What is the allergic basis for migraine; i.e., why do allergists believe that migraine is an allergic manifestation?

Migraine exhibits the characteristic periodicity of allergic diseases. There is usually a strong hereditary background of migraine, or some other definite allergy. We have observed in our patients, as others have noted, that the migrainous tendency is usually transmitted by the female members of the family tree. The age incidence is similar to that of other allergies, i.e., the second, third or fourth decade of life. It is probable that like the other clinical manifestations of allergy, migraine occurs in the first decade and is manifested by cyclic vomiting in children.[10]

Migraine is commonly associated with other manifestations of allergy, such as asthma, eczema and urticaria (see case report). Finally, not infrequently, there is a definite food relationship. The most common offenders in our experience are milk, wheat, egg, onion, legumes, nuts, beans, chocolate, fish, beef, pork and sea foods.

It is sometimes argued that if a food is a causative in migraine it should cause a typical headache each time it is eaten, and since this usually is not the case, the suspected food cannot be the etiologic agent. The fallacy with this reasoning lies in the fact that there is a refractory period following an episode of migraine, during which the antigen cannot cause the vasodilatation and therefore can be ingested with impunity. When the refractory period is over, exposure to the antigen will again produce an attack of migraine. This, I believe, accounts for the periodicity of migraine even when due to such commonly eaten foods as milk, wheat and egg.

This is similar to clinical and experimental experience with the administration of heterologous proteins to man and animal. Non-fatal anaphylaxis occurring in a sensitized subject, after proper preparation and injection of the antigen, results in a refractory period during which the antigen can be reinjected without ill effects, but after the refractory period there is again specific sensitivity to the antigen.

As an illustration, following the injection of meningococcus antitoxin, or antiserum, a state of hypersensitivity develops in about two weeks. Subsequent early administrations of the serum are hazardous. It was, therefore, the custom, before the sulfonamides, to give small doses of the antitoxin not longer than a week apart in order to keep the patient desensitized so that adequate therapy could be given, if there was a relapse. For two weeks after the antitoxin has been given, the patient is refractory and it may be repeated without danger of reaction.

Tuft [11] states that there may be "some change in the food after its digestion, or after its absorption, from the gastrointestinal tract which determines whether or not it will induce an attack."

Migraine is frequent in highly emotional persons, and bouts of the disease may follow mental or physical fatigue. Hartsock and McGurl [12] point out that "fluoroscopic examination of the stomach and upper intestinal tract just prior to the onset of an attack shows a marked stasis, or even a reverse peristalsis in the duodenum." This produces an ideal situation for absorption of protein molecules, and may account for the relationship of emotional upsets and migraine. It still requires specific hypersensitivity to the absorbed proteins in order for migraine to occur. The presence or absence of duodenal stasis may also explain why the ingestion of an offending food causes an attack of migraine at one time and not at another.

Approximately 25 per cent of patients with typical migraine are not relieved by allergic management.[7, 8, 12] This might be due to the fact that all allergic factors cannot be discovered or that there is so marked an instability of the sympathetic nervous system "that the mechanism producing the headache functions from other causes or continues to function even though all the stimuli from allergens have been removed." The elimination of offending allergens gives satisfactory results in 75 per cent of patients with migraine.

TABLE II

Analysis of Migraine Cases (52)

Age of patients	14 to 55 years (average 35 years)
Age of onset	3 to 46 years (average 20 years)
Allergic factors found	28 patients (54 per cent)
Other allergies present	23 patients (44 per cent)
Family history of allergy or migraine	40 patients (77 per cent)
Sex incidence	29 males—23 females

In analyzing our 52 patients with migraine (table 2) we found the average age incidence to be 35 years, range 14 to 55, and the average age of onset to be 20 years, range 3 to 46 years. Allergic factors were found in 28 patients (54 per cent) as clinically important in causing their migraine. It seems probable that this would be even higher if more prolonged study with adequate trial of elimination diets could be carried out.

Other allergic manifestations such as hay fever, urticaria, asthma, etc., were present in 23 patients (44 per cent). Twenty-nine of our patients were male and 23 female. Our higher incidence in males than is usual can readily be attributed to the fact that we see a much higher proportion of males in our clinic.

CASE REPORT

Captain E. S., a 37 year old medical officer, was referred to the Allergy Clinic, Walter Reed General Hospital, on September 16, 1942, because of a history of angioneurotic edema, seasonal hay fever and severe headaches.

His father had chronic eczema, brother had seasonal hay fever and sister had angioneurotic edema.

The patient's first allergic manifestation began in childhood with typical migraine. The attacks occurred irregularly every two to eight weeks. The headache was preceded by visual disturbances consisting of peripheral scotomata of various sizes and shapes. The aura was shortly followed by hemicrania which gradually increased in severity until he developed severe nausea followed by vomiting. The headaches lasted for 24 to 36 hours. Ergotamine tartrate, 0.50 milligram, given subcutaneously early in an attack, gave moderate relief.

Since 1929 he had recurrent bouts of angioneurotic edema every month or two. The hay fever was seasonal, recurring each June and August since 1940, with typical nasal-eye symptoms.

Intradermal skin testing and trial of elimination diets established the fact that the hay fever was due to grass and ragweed pollen sensitivity, and the migraine and angioneurotic edema to multiple food sensitivity, namely pork, veal, fish, shellfish, chocolate and strawberries. Ingestion of these foods was frequently followed in 12 to 24 hours by an attack of migraine or angioneurotic edema or both. Careful avoidance of these foods has resulted in absence of both the migraine and the angioneurotic edema.

This case report illustrates the early age of onset of migraine, the allergic family history, the concomitant allergic manifestations, and the definite food relationship.

Comment

The physiology of migraine has been fairly well established.[13] The scotomata and other pre-headache cortical sensory phenomena have been demonstrated to result from constriction of cerebral arteries and the headache is caused by dilatation and distention of arteries, chiefly branches of the external carotid. This is well illustrated clinically by the remarkable case report of Goltman.[6] His patient had an operative burr opening made in the left frontal area of the skull because of a suspicion of brain tumor. Subsequently in her free periods, between attacks of migraine, this opening in the skull was depressed. During an attack there was marked bulging in this area. The migraine and bulging in the operative site could be reproduced by the ingestion of wheat.

Allergic factors are prominent and important in migraine, but we do not claim that there are no other factors. As Alvarez[14] has pointed out, emotion, fatigue, worry, excitement, and in women menstruation, may precipitate an attack of migraine.

Treatment of Migraine

Prophylactic. 1. Allergic control: Identification and elimination of offending allergens, usually foods. This, admittedly, is frequently difficult. Careful intradermal skin tests are first done and a trial of elimination of the positive reactors, including the slightly positive, should be instituted. Because of the fact that the sensitivity to the food or foods is usually delayed in type, it is common and even expected that the offending foods may not be discovered by skin testing. Other factors which lessen the reliability of skin

tests for foods are that the sensitivity may be due to a breakdown product of that food or the altered cooked protein, whereas the antigen is made from the raw whole food.

Elimination diets patterned after the standard Rowe diets are frequently more helpful in our experience. Food diaries have been used but have given us meager results. We have not tried the method described by Coca [15] for discovering food antigens. This consists of counting the pulse under fasting conditions and noting the effect on the pulse rate of foods given individually. An increased pulse rate signifies an offending food.

2. Predisposing factors: Avoidance of physical and mental strain or emotional excitement is of great importance. Errors of refraction, definite foci of infection and endocrine disturbances should be corrected.

Therapeutic. 1. Ergotamine tartrate (gynergen) 0.25 to 0.50 milligram given subcutaneously is by far the best and simplest therapeutic agent. If given early in an attack, it is effective in approximately 90 per cent of cases. Seconal or nembutal, 3 grains, orally or in a rectal suppository, if nausea or vomiting is present, is useful to prevent the side effects of the gynergen and promote sleep and earlier recovery.

2. Prostigmine bromide orally has recently [16] been reported effective both prophylactically and therapeutically, and further trial is indicated. We have had no personal experience thus far with this drug in the treatment of headaches.

3. Oxygen by inhalation [17] has been used successfully in treatment by Alvarez, Boothby and Lovelace. One hundred per cent oxygen is given early in an attack by means of the B.L.B. inhalation apparatus, or by the ordinary basal metabolism unit.[18]

Summary

1. Seventy-one consecutive patients with headache were studied from an allergic standpoint. Careful classification showed that four of these patients had histamine cephalalgia, 52 had typical migraine, and the remaining 15 had miscellaneous causes for their headache, such as hypertension and anxiety states.

2. The clinical characteristics of histamine cephalalgia or vascular headache and of migraine are described.

3. Two case histories of histamine cephalalgia and one of typical migraine are recorded. The efficacy of histamine hyposensitization therapy in histamine cephalalgia is confirmed in these patients.

4. The allergic basis for migraine is discussed. In 28 (54 per cent) of the 52 patients with migraine, food allergy was found. Twenty-three (44 per cent) of these migrainous patients exhibited other major allergic diseases such as hay fever, urticaria and asthma. A positive family history of allergy or migraine was obtained in 40 patients (77 per cent). Hypersensitivity plays a major rôle in causing migraine.

5. The modern prophylaxis and treatment of migraine are outlined. Elimination of offending allergens is of utmost importance in prevention of migraine.

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PSYCHOSOMATIC MEDICINE: SOME NOTES ON ITS APPLICATION IN THE DIAGNOSIS AND TREATMENT OF DISEASE *

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THE enormous progress of medicine during the last century proceeded chiefly along the lines of the pathology of particular organs and particular functions. More and more, we came to think of disease as an abnormality of special tissues rather than as disease of patients. However, as knowledge of tissues increased, we began to realize that the perfect functioning of tissues is dependent on the integrity of other organs and that the functioning of organs is inextricably linked through the central and autonomic nervous systems to the emotional life of the patient. Psychosomatic medicine is that approach to medical problems which considers the personal and impersonal (organic or physico-chemical) factors and the reciprocal effects of these factors in illness. It attempts to study and treat the individual rather than a collection of parts, one or more of which may be diseased. Groups of investigators all over the country, recognizing the importance of emotional factors in the production of illness and, for that matter, the effect of chemical and physical disturbances in altering the personality, have attempted to throw more light on these problems.

The difficulties encountered, when only the impersonal factors are considered, are well illustrated by an extraordinary case seen some months ago. The patient was a young negress whose chief complaint was increasing weakness and a "pins and needles" sensation in her hands and feet. On examination, it was found that she had a polyneuritis involving all four extremities, a glossitis, and marked enlargement of the liver. Her history revealed a meager food intake for many months preceding her admission. She had subsisted on fruit juice, Coca Cola, an occasional frankfurter, and a decent meal once or twice a month. She related that four years previously she had been admitted to Knickerbocker Hospital, greatly emaciated, weighing 65 pounds, and suffering from bilateral foot and wrist drop. She was treated with vitamin concentrates, liver, and a high caloric diet, and progressed rapidly to complete recovery. After leaving the hospital, she stayed with her aunts who prepared her meals and saw that she ate them. She regained strength and returned to her job as assistant forelady in a millinery factory where she supervised the work of some 80 girls. After some months, having returned to her old dietary habits, she was seized with the same symptoms and was readmitted to Knickerbocker Hospital. Recovery was again

* Received for publication October 12, 1942.
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rapid and complete. When she left the hospital, she was warned, as she had been upon her first discharge, that her symptoms would return if she failed to obey instructions concerning diet, and that her foolish eating habits were jeopardizing her life. She understood the instructions clearly; she appreciated exactly what the penalty would be if she disregarded them, and yet, about a year later, she was admitted to the New York Post-Graduate Hospital with the same complaints. Again she had failed to follow the instructions. Conversation with her made it obvious that she was quite intelligent and not at all lazy. Each night she prepared dinner for her husband, but watched him eat while she sat by. She said that she had never been able to eat when she had to prepare the meal herself, that fixing food made her lose her appetite, that she was perfectly willing to eat when some one else prepared the meals.

The question then became the origin of this curious aversion to taking food of her own preparation. She related that she was the youngest of a large family, that she was in every sense the baby of the family, catered to and protected by her mother and older sister. The patient attributed the illness to the death of her mother; she was terribly depressed by it and attempted suicide a month afterward. Her older sister took over, but six months after the death of the mother, this sister died quite suddenly. For a short time following, her aunts took care of her household; when she was separated from them, her appetite disappeared and she began to refuse food. She described a vision while going to sleep, in which her mother appeared and tried to comfort her. In brief, this girl was over-dependent on her mother. The separation from her and from her mother substitutes was so violently resented that she reacted in a manner which could either assure her the wanted nursing or effect her destruction.

When she was presented at our conference, there was a long discussion of the nature of her neuropathy and of the enlargement of the liver. No one commented on the fact that this was the third attack of the same illness, and no one seemed to pay much attention to the source of her bad food habits. Yet it seems clear that unless this girl is effectively weaned from her need for a mother substitute, her attacks will continue. This case seems to us to illustrate very well the importance of the psychosomatic approach, since only by study of both the physical symptoms and their emotional origins could this case be brought to a successful conclusion.

Similar problems are exceedingly common. Most clinicians, sensitive to patients' emotions, find that 50 to 75 per cent of the people who come to their offices have symptoms which are largely the result of personal maladjustments; that is, somatic or physical lesions seem to be of minor importance, the major element being some emotional disturbance. When tests for organic lesions are negative, be the test chemical, bacteriologic, microscopic or roentgenographic, the doctor is apt to believe that there is nothing much wrong with the patient. He may urge him to forget his symptoms or offer him some medication for symptomatic relief, or he may

feel that the illness and the symptoms are imaginary. Sometimes, as in the case cited, he finds a physical lesion, focuses his attention on that, cures it, and is surprised to find that the symptoms recur.

Yet the literature is crowded with precise scientific work showing that emotional disturbances and purely psychic influences can produce not only temporary alterations of function but definite structural changes in the tissues. They have been demonstrated in every organ of the body. We could illustrate them endlessly, but a few of the more recent observations may suffice. For example, Mittelmann and Wolff [1] have shown by means of introducing into the stomach devices for measuring gastric secretion, acidity, and motility, that when their patients were troubled by discussion of distressing personal problems, there were prompt changes in gastric secretion and gastric motility. I need not emphasize the bearing of this finding on disturbances in the function of the stomach. Pavlov,[2] White, Cobb and Jones,[3] Cannon [4] and others have done monumental work in this field.

The field of allergy, particularly asthma, has yielded numerous interesting observations. There is the famous case described by Prince in which an asthmatic attack was induced by presenting a rose-sensitive patient with a rose made of paper. It has been shown that asthma due to specific allergies such as tobacco, has been eliminated by pure psychotherapy, even though positive skin reaction remained. With these facts in mind, it is easier to understand the observations of McDermott and Cobb,[5] French and Alexander [6] and others that asthmatic attacks are often induced in susceptible patients by emotional factors.

Gessler and Hansen [7] showed that patients under hypnosis would exhibit a rise or fall in metabolic rate when suggestions of great heat or great cold were offered, regardless of the actual temperature of the room. Whitehorn [8] found that the mood of anxiety or apprehension, hypnotically induced, could increase the metabolic rate as much as 22 per cent.

Milhorat et al.[9] showed that leukocytosis was often associated with emotional disturbances. Mittelmann and Wolff [10] demonstrated that when a patient was kept in a room of constant temperature, a discussion of disturbing subjects caused a sharp drop in skin temperature, clear evidence that the blood flow to the extremities had been sharply reduced. The importance of this in the etiology and treatment of peripheral vascular disease is apparent.

It has become evident in recent years that in certain groups of diseases it is essential to consider the emotional life of a patient as well as the physical symptoms and structural lesions, if any lasting results are to be obtained. We think particularly of the so-called cardiovascular neuroses and neurocirculatory asthenia, certain cases of hypertension, Raynaud's disease; the hyperventilation syndrome, many cases of asthma; such gastrointestinal disturbances as cardiospasm, aerophagia, hyperacidity, anacidity, peptic ulcer, pylorospasm, biliary dyskinesias, mucous colitis, spastic and atonic constipation, ulcerative colitis, enteroptosis; urinary frequency, sexual disturbances

such as impotence and frigidity, menstrual disturbances such as dysmenorrhea, amenorrhea, menorrhagia; such skin disturbances as neurodermite, urticaria, angioneurotic edema, eczema; certain cases of arthritis; certain types of headache, migraine; anorexia nervosa and even obesity. What is loosely called "morale" is important not only in the war wounded but in the management of any chronic illness. Emotional factors play a minor or major part in practically every illness.

Some Principles of Diagnosis

Etiologically and symptomatically patients can be divided into three great groups: a first group consists of patients whose illness is largely emotional in origin and in symptoms. This group is illustrated by some of the psychoses and some of the psychoneuroses. These cases are generally referred to the psychiatrists. The second group is comprised of patients whose illness is chiefly structural, with (*a*) few or comparatively minor emotional concomitants, for example, most routine surgical cases; (*b*) emotional disturbances produced by a somatic disturbance: these may be temporary, such as a delirium due to fever or anoxemia, or relatively permanent, such as the alterations produced by a brain tumor or brain surgery, or general paralysis of the insane. The third group, composed of those cases in which both factors are of great importance, can be subdivided into three parts: the cases in which an emotional disturbance causes a temporary, reversible alteration of function; the cases in which an emotional disturbance may cause transient or permanent organ damage, for example, the young negress mentioned earlier; and the cases in which a preëxisting organ lesion is aggravated by an emotional disturbance, for example, the cases of angina pectoris due to coronary sclerosis in which further attacks are regularly precipitated by anxiety. This third group can, as a matter of fact, be described in every organ and function of the body. We will devote the rest of the discussion to this group.

There are certain aids in the proper evaluation of patients' symptoms, that is, in arriving at a more definitive diagnosis. The first principle is, of course, that diagnosis must be as complete as possible. It must include an explanation of both the somatic and the emotional symptoms presented by the patient as well as an evaluation of their relative importance. In order to accomplish this, it is vital that each aspect of the problem be appraised by its own criteria. Diagnoses of emotional disturbances cannot be made by exclusion, i.e., on the basis that no physical structural cause for the symptoms has been found. Such an attitude is illogical and futile because first, there is always the possibility that a structural lesion has not been detected by the examinations made, no matter how complete; second, the criteria for a diagnosis of personality disorder are separate and independent, requiring just as many facts for the diagnosis as for the diagnosis of any physical syndrome; third, if the patient's emotional history is obtained, the diagnosis

can be made on the basis of positive evidence which gives the lead to effective therapy.

The mental history should include several groups of data: (*a*) the family history, with emphasis on the emotional stability of the parents and siblings and the relationship of the patient to the members of his family; (*b*) the childhood period, including neurotic traits and school history; (*c*) the adolescence and the problems arising during that period. Freud, Adler, Jung and many others have elucidated the crucial influence of the experiences of early life in determining the patterns of the adult. If the physician is unable to spend the time necessary for taking such a history, he can at least investigate the emotional stability of the patient in the past and determine which particular patterns the expressions of emotional disturbance follow. He can then proceed to a history of the present situation and attempt to elicit the precipitating factors in the present illness.

He must evaluate the personal adjustment of the patient, particularly in regard to disturbances in the home situation, the patient's work, his sexual life, and any other aspect of his personal life which might lead to the development of unhappiness, frustration, tension, or anxiety. Physical factors such as poor nutrition, overwork, trauma and toxins may be critical at this point, since they lower the patient's resistance to personal difficulties present for a long time.

Some patients deny the existence of an emotional disturbance, either because the conflict is largely unconscious or because they have been antagonized by abrupt questioning on subjects which they consider unconnected with their illness. In such cases, a full history must be obtained slowly and cautiously.

There are further aids in evaluating the relative importance of emotional and physical factors. One device is to discover whether emotional disturbances precipitate or increase the symptoms. Of course, when the patient is unhappy or anxious, even symptoms due to an organic lesion are apt to be aggravated and even organic lesions can be improved symptomatically or actually by reassurance. But if the patient recognizes that strain and anxiety are a factor in the production of his attacks, the physician at once has an important clue to diagnosis and treatment. A second help in evaluating symptoms is the fact that most of these patients with combined problems exhibit anxious behavior readily detected by any attentive clinician. Another point is that the symptoms in these cases are usually found to be multiple, if careful systemic histories are taken. Although many patients who complain of symptoms in many parts of the body may have serious personality maladjustments, multiplicity of symptoms in itself is evidence chiefly of hypersensitivity. They indicate an undue awareness of visceral sensations. The presence of certain symptoms which are invariably due to anxiety rather than a structural lesion, such as sighing respiration, the globus sensation, severe aerophagia, indicates that whether or not the patient has any

additional physical lesion, there is also an important emotional component in the total picture.

One of the most fundamental and most difficult problems in psychosomatic medicine is the question of why symptoms are referred to one particular organ when the patient is emotionally disturbed. Why does one man, when perturbed, develop a rapid heart, whereas another develops diarrhea? This whole problem of the so-called "choice of neurosis" is in its earliest infancy. A few factors are known; repeated attentions directed at a particular part tend to establish a conditioned reflex pathway, so that in the future there will be a tendency on the part of that patient to develop symptoms in that area when he runs into difficulties. Local organ defect, the "organ inferiority" of Adler, is important in some cases. Recent traumata, either mental or physical, may determine the choice. Familial tendencies play a part. In some instances Freudian analysis is required to reveal the answer. Often, the cause is never determined.

Therapy

The ultimate problem is, of course, therapy. The first essential in successful management of patients with emotional problems is that the physician believe that these patients really suffer. Occasionally, patients with anxiety about physical symptoms are easily relieved by minimizing the importance of their complaints, but the casual statement that there is nothing wrong seldom satisfies or reassures the patient. Too often it results in his consulting another physician or one of the practitioners of pseudomedical science when symptoms persist or recur. No durable result is likely to be achieved unless the physician takes the time and trouble necessary to get at the evolution and the nature of the complaint. This involves enough time and sympathetic understanding to permit the patient to talk freely. We would repeat that the physical status must be determined as precisely as possible. Meticulous examination lends great weight to the reassurance which is important in almost every case. It is important that the physician be as definite as he possibly can. Hedging breeds anxiety.

Certain psychotherapeutic procedures can be, and, as a matter of fact, are, used by every physician, no matter what his field. Suggestion, an extremely potent force in influencing patients, is, we believe, a part of every treatment, whether the suggestion derives from the diploma on the wall, the handsomely decorated office, the personality of the physician, the bottle of placebo, the use of impressive physiotherapy, or a hypodermic. Every time a physician talks to a patient he exerts some suggestive influence, whether positive or negative, conscious or unconscious, for good or for ill. Suggestion properly applied can cause alteration of function in the normal or abnormal body. To be useful, it must be offered in a positive manner. However, unless used with a clear knowledge of its limitations and a realization that its abuse may be dangerous, it can be a very harmful procedure both for the doctor and the patient.

Another psychotherapeutic method is what has been termed catharsis. It means, in essence, allowing the patient to spill his troubles to a sympathetic person. In many instances, this method, combined with wise counsel, will serve to forestall the development of more serious neurotic symptoms, mental or physical.

Relaxation therapy, which includes the prescription of vacations, increased rest, and various forms of recreation, has a large place in psychotherapy. Prescribed exercise often helps tense, anxious, and hypochondriacal patients. The exact mode of action is not clear. For one thing, exercise seems to decrease the sensitivity of the nervous system, particularly the autonomic apparatus. It relieves tensions. It also appears to have certain value as a form of reassurance, especially in cases with symptoms referred to the heart, because it convinces the patient that the physician is certain there is no organic heart disease.

Persuasion is another technic commonly used. It is particularly useful with certain types of hypochondriacal patients. It consists of carefully convincing the patient that the symptoms are not important, that no serious disability threatens, and that if the attention is focused on some more constructive pastime than an examination of symptoms, they will disappear.

There are other types of psychotherapy which should be used only by the expert.

Psychoanalysis is one of the best known. It is an excellent method for very carefully selected neurotic patients. They must be carefully selected because it is a major procedure. It involves visits, lasting an hour, three to six times a week, for a period of one to five years, the average being about two years. We believe that this type of therapy should be reserved for patients whose neuroses interfere seriously with their lives; who are comparatively young, that is, under 45; who have at least average intelligence, and who have a good deal of mental health in reserve. It is not suitable for the psychotic or prepsychotic. The choice of the analyst is critical, because the procedure, in poor hands, can do a great deal of harm. We believe that the character of the analyst and his fundamental wisdom are of as much importance in the proper handling of the case as the technic itself because the prolonged close contact, the intimacy of the discussions, the comments on every aspect of the patient's life lead very often to permanent coloring of the patient's attitudes and values.

The distributive analysis and synthesis of Adolph Meyer's school is more generally applicable. It is a pluralistic approach to the problem of personality disorders. The patient's complaints and symptoms are analyzed for concrete determining episodes and constitutional patterns. Direct methods using the patient's capacity for recall, as well as indirect methods using dreams and reactions to inkblots, are employed. At the same time, the physician constantly directs a synthetic reëducational process, designed to give the patient a greater degree of control over undesirable reactions, by use of the material disclosed by the analysis. This method is far less time-con-

suming and more generally applicable to maladjusted patients. Group psychotherapy, utilizing the contributions of Freud, Adler, and Meyer, has great potentialities and may well become a common and effective procedure in the future. Schilder's work in this field deserves mention.[11]

Our discussion of the problem has been incomplete, because the field is too broad to be summarized usefully in one paper. We hope that we have made a few points clear: the futility of saying that the patient is neurotic and dismissing him; that when such a diagnosis—and it is a diagnosis—is fastened on the patient, the physician will realize that the problem is just beginning; that the term "neurosis" should be a term of comparative precision which is applied to precise syndromes which demand definite criteria for the diagnosis and combined treatment for a cure; that personal factors can be important in illnesses of practically any part of the body; and that therapy which recognizes this will be more effective.

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RECENT ADVANCES IN U. S. PUBLIC HEALTH SERVICE METHODS*

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A study of the history of past wars reveals the fact that diseases do very markedly influence the course of wars. Until modern times, casualties from disease among the fighting forces far exceeded that sustained from wounds on the battlefield. The effect of disease was not limited to the fighting forces of the war zone, but affected the civilian population and the general economic condition of the countries involved. As startling as it may seem, casualties from typhoid fever in the Spanish American War far exceeded the battle casualties, and the rate of venereal diseases reached 187 per thousand men. Since this time, advances in preventive and curative medicine have decreased the losses from diseases.

At the outset of the present emergency, public health workers at the Federal, State, and local levels, benefiting by this previous experience, were better prepared to meet the emergency than at any other time in the history of the country. As a result, the health of the people has remained near peacetime levels. In fact, during the year 1942 we experienced the lowest death rate in our history (10.3 per cent per thousand). The death rate for the first six months of 1943 approximated closely that of the preceding year, but there are some indications that the rate may be slightly less favorable in the last six months. This does not mean that there has not been an increase in the incidence of certain diseases. On the contrary meningococcus meningitis, poliomyelitis, and dysentery show definite increases. The incidence of venereal diseases which in all prior wars has shown a marked increase in rate shows only a slight increase in the current period. By comparison, venereal diseases in England have increased over 70 per cent. Other diseases, and particularly those which were normally expected to show a sharp increase during wartime, actually show a decrease. Typhoid fever is a good example.

These favorable health conditions did not just happen accidentally. They are the result of long study, continued research, experience, and careful planning on the part of Federal, State, and local health authorities. In order to meet the emergencies that arise during wartime, health departments have been forced to expand facilities and increase personnel. In many areas the health facilities are greatly overtaxed, particularly where there are large concentrations of military personnel or war industrial workers. The immensity of the problem has been somewhat aggravated by the constant drain into the armed services of a large number of physicians, nurses, and tech-

* Read before a Regional Meeting of The American College of Physicians, Chicago, Illinois, on October 16, 1943.

nicians trained in public health work. As a result, health protection activities have been streamlined and new measures of control have been inaugurated in order to utilize the manpower available in the communities where shortages of trained workers exist. Some of the newer technics now being employed cannot be applied with inexperienced workers. The change in methods for the control of venereal diseases is a good illustration.

Prior to the war, the foundations had been laid for the control of venereal diseases. This was made possible by the Venereal Disease Control Act of 1938, making funds available for the organization of venereal disease control programs in each State. Clinics were established for the treatment, without cost, of patients infected with venereal disease who were unable to bear the expenses of medical treatment. Central tabulating units were set up to provide an aid to better case finding and case holding and to evaluate the venereal disease control program. Epidemiological workers were employed to contact infected persons, in order to insure continued treatment until maximum benefit has been obtained, and to bring their contacts to treatment. Under the routine method of treatment patients are required to visit the clinic each week for 70 weeks and return for observation at intervals during the next two years.

The standard treatment recommended for early syphilis consists of 30 injections of an arsenical and 40 injections of heavy metal administered weekly for 70 weeks. Statistics indicate that at least 20 arsenicals and 20 doses of bismuth should be given to the infected individual in order to protect the community from the spread of syphilis. This means that the early case of syphilis is a potential menace to the community until he has completed 40 weeks of continuous treatment.

Unfortunately, many patients become discouraged and lapse from treatment before receiving the minimum required therapy to render them noninfectious. A tabulation of early syphilis cases treated by standard clinical methods was recently made by the Central Tabulating Unit in Chicago. Of 21,866 cases treated during the past three years, it showed that only 32.8 per cent received the minimum required therapy. The failure of over 67 per cent of the cases of early syphilis to take sufficient treatment to prevent possible infectious relapse indicates apparent need for more effective control measures. During the last war, many venereal disease patients were placed under quarantine and confined in jails, stockades, and detention houses. Many of you probably remember those places. You will also recall that patients were considered more as criminals than as sick individuals. Court action was necessary for confinement during treatment.

Before the beginning of the present hostilities, plans were made to avoid the mistakes of the last war. To assist in the fight against the spread of venereal diseases in wartime, the Federal Security Administrator established a Social Protection Division in the Office of Community War Services. The Social Protection Division has been conducting an education program, based on venereal disease law enforcement and stressing particularly the importance

of the repression of prostitution and enforcement of laws covering vice control, as an effective measure for the control of venereal diseases.

As a result, houses of prostitution in military and war industrial areas have been closed to a large degree. According to the Liaison Officer attached to the Sixth Service Command, the incidence of venereal infections contracted from paid prostitutes has dropped to approximately 5 per cent of the total infected cases in this Service Command. It is clearly indicated, therefore, that the greatest source of venereal disease infections at the present time is not the paid prostitute.

All cases of venereal disease in the military forces are reported to the State and local health departments. These reports give the name of the girl, location, place of contact, place of exposure, and other pertinent information, if obtainable. Information regarding the place of contact and place of exposure is reported to the local health officer of the city where the contact is made. Every effort is made to locate each reported suspect, and if located to have her brought to the clinic and given thorough medical examination. When a diagnosis has been established, the patient is immediately placed under treatment. In addition to those in the armed forces infected with a venereal disease after induction, between 800,000 and 900,000 selectees were deferred by Selective Service as a result of positive serologies. Exhaustive efforts are being continued to place these registrants under treatment. The Army is taking a number of these uncomplicated cases and giving them treatment. In the congested military and industrial areas, nurses and lay workers are employed to investigate persons reported as contact cases in order to bring them under immediate treatment. As a result of this coördinated drive to locate all sources of infection, the cases under treatment have increased about 20 per cent over the normal clinic loads, and, in turn, clinical facilities are now greatly overtaxed in the congested areas.

To cope with this situation, the Public Health Service, State, city, and county health departments, and certain private agencies, have established and are now operating 30 hospitals which have been officially designated as "Rapid Treatment Centers." Proposals are being considered for the addition of approximately 45 hospitals of this type. Fifteen of the new treatment centers will be operated temporarily by the U. S. Public Health Service and the Federal Works Agency is contributing to the financial support of the institutions operated by the States, cities, and counties. In many cases the Public Health Service is supplying trained personnel. These centers are operated as hospitals, and the patients are treated in the same manner as inpatients in any general hospital. I should like to point out clearly that patients in these Rapid Treatment Centers are not stigmatized as criminals and that it is not necessary to have them confined to these hospitals by court order.

One of the first centers in operation (and among the largest at the present time) is the Chicago Intensive Treatment Center which is operated under the direction of the Chicago Board of Health. This Center was opened on No-

vember 20, 1942. The Center had as its objective the effective control of venereal diseases. I wish to emphasize the fact that patients in this Center are not prisoners. A majority of the patients admitted to the Chicago Intensive Treatment Center are referred by the various clinics of the Chicago Board of Health. Other admissions include those who enter on a voluntary basis, Selective Service registrants who have been deferred because of venereal infection, and persons reported as contacts by military authorities. The types of cases admitted to the Intensive Treatment Center are limited to primary, secondary, and early latent syphilis and sulfonamide-resistant gonorrhea. The following figures, which are given with the consent and approval of Herman N. Bundesen, M.D., President of the Chicago Board of Health, indicate the scope of activities at the Chicago Center for the period November 20, 1942 to August 31, 1943. They are as follows:

Syphilis, primary and secondary	1,193
Syphilis, latent	273
Gonorrhea	1,685
Cases admitted for diagnosis only	294
Total	3,445

Three methods of rapid syphilo-therapy are employed in the Chicago Clinic. These include: (1) The chemo-thermic method; (2) The Schoch method; and (3) The Eagle-Hogan method.

The technic used in the chemo-thermic method is as follows: Before treatment is begun, an intensive physical examination is given each patient with particular attention to the cardiovascular and respiratory systems. Approximately two days are required to complete the examination and workup. If there are no contraindications, the patients are given eight hours of fever therapy during which the rectal temperature is maintained at approximately 106° F. During this eight-hour period the patient receives 1.76 milligrams of mapharsen per kilo of body weight or a total of 150 milligrams for 150 pounds of body weight. This amount is given in three doses during the administration of the eight-hour fever treatment.

To date, there have been approximately 1,000 patients treated by this method with only two fatalities reported. These fatalities were the fourteenth and seventy-third patients treated. It was discovered that these individuals had tuberculosis. One was confirmed by autopsy, the other by clinical symptoms. As a result of the experience obtained in the treatment of the first 1,000 cases, a roentgenogram of the chest and an electrocardiogram are now made on each patient in addition to a careful physical examination. Since the inauguration of these two measures, over 900 cases have been treated without a single death or severe reaction.

When the Schoch method is employed, the patients are given 60 milligrams of mapharsen twice daily for seven days followed in most instances

by 300 milligrams of bismuth. Patients treated in this manner are given the same careful examination and workup as those being treated by the chemo-thermic method. One hundred sixty-two have been treated thus far by the Schoch schedule.

Those patients who after examination are deemed unable to undergo the first two types of treatment are given the Eagle-Hogan schedule of injections in short periods of time while confined in a hospital. Of the first 514 cases treated by the chemo-thermic method, 43 or 8.4 per cent have relapsed and are considered failures. These failures are cases that have since shown a return of positive serologic reaction or a clinical symptom of syphilis. Of the 162 cases treated by the Schoch method there have been, to date, four failures or 2.4 per cent. The data would thus indicate that a high per cent of the cases observed have a reversal of the Wassermann to negative and are clear of symptoms at the end of six months.

For these centers to operate at maximum efficiency, it is necessary that they have the support of an efficient case-finding program. Every effort must be made to bring to treatment all known cases of syphilis at the earliest possible date, particularly those patients who have been repeatedly reported as contacts of military personnel or war workers. After the person is located, it is then essential that each one be handled in a kindly manner and rendered non-infectious at the earliest possible date.

With the present intensive treatment schedules, patients can be treated and rendered non-infectious in a high percentage of the cases, in from 5 to 14 days. However, it is as yet too early to know what the final results of intensive treatment will be. At the beginning of the operation of the Chicago Intensive Treatment Center very little was known about the chemo-thermic method of treatment. The temperature to be used, the length of time for administration, and the amount of mapharsen to be given had to be determined. The early cases were given small doses, usually about 60 milligrams. The dosage has been gradually increased and ultimately a minimum curative dose consistent with the safety of the patient will be established. The effect of high temperatures over a long period of time, particularly when patients are dehydrated or are suffering from other diseases, was a problem requiring exhaustive study. The fatalities which occurred were no more than normally expected, since there was a lack of specific knowledge in this type of treatment. We now know that such intensive treatments are definitely contraindicated in cardiovascular conditions and tuberculous cases. These facts have been definitely established, and mistakes of the past will not be repeated. However, many questions are yet to be answered, and much research remains to be accomplished. Facts thus far revealed are encouraging. It is certainly an effective and efficient manner of controlling the infectious stage of syphilis, and current indications point to its value and effectiveness as a curative measure.

INVERSION OF THE T-WAVES OF THE ELECTROCARDIOGRAM IN TWO PATIENTS WITH NEUROCIRCULATORY ASTHENIA *

By WEBSTER MERRITT, M.D., F.A.C.P., *Jacksonville, Florida*

UNTIL a few years ago inversion of the T-waves in Lead I or II of the electrocardiogram was considered evidence of organic heart disease. Recently, however, certain exceptions to this general rule have been reported. At Riverside Hospital during the past five years, we have studied two young women who apparently do not have heart disease but whose electrocardiograms have shown temporary inversion of the T-waves in Lead II. We are presenting their case histories after a brief review of the literature.

Graybiel and White,[1] in 1935, reported seven young people, three male and four female, suffering with neurocirculatory asthenia, whose electrocardiograms, taken in the sitting position, showed an inversion of the T-wave in Lead II, but in all other respects were normal. These workers concluded that the factor causing the inversion was unknown, pointed out that it was an occasional finding, and emphasized its importance because of the serious diagnostic error to which it may lead. At the same time these investigators also reported five young patients whose electrocardiograms showed inversion of the T-waves either during or soon after an acute illness due to an infection; later the T-waves became upright and in no instance was there any evidence of organic heart disease. Breed and Faulkner,[2] in 1936, reported a male of 19, a college freshman who had played football in high school, whose electrocardiogram showed an inversion of the T-wave in Lead II which became upright after exercise. It was concluded that he did not have myocardial disease. Akesson,[3] in 1936, and Sigler,[4] in 1938, showed that an inverted T-wave in Lead II may depend upon the body position; that is, the T-wave which is normally upright when the patient is lying down may become inverted when he is sitting or standing. Graybiel and White [5a] report similar findings in *Electrocardiography in Practice* (1941) and, I understand, Chamberlain and White have observed a number of patients showing this phenomenon, but their work has not yet been published.[6] Graybiel and White [5b] also have shown that an inverted T-wave in Lead II may depend upon the position of the diaphragm and a shift in electrical axis; that is, with the patient sitting up, the T-wave which is normally upright during quiet respiration may become inverted during deep inspiration. Similarly, Graybiel, Starr, and White [7] in January, 1938, and Segal [8] in December, 1938, have shown that the inhalation of tobacco smoke may cause a normally upright T-wave in the second lead to become inverted, and the former workers have compared the results with the action of atropin on the para-

* Delivered before the American College of Physicians Section of the Florida State Medical Society, Jacksonville, April 28, 1941.

sympathetic nervous system. Stearns, Drinker, and Shaughnessy [9] reported in 1938 a low, diphasic T-wave following the inhalation of carbon monoxide. Barker, Shrader, and Ronzoni,[10] in 1939, found that alkalosis as the result of overventilation may produce marked lowering of the T-waves, and many workers [11, 12, 13] have reported that anoxemia may produce an inversion or decrease in amplitude of the T-waves. Mainzer and Krause,[14] in 1939, reported findings which they believed indicated that fear may cause inversion of the T-waves. Tuttle and Korns [15] in January, 1941, reported that the T-wave in the second lead may become diphasic in an athlete after a season of physical training. Graybiel and White [5e] in *Electrocardiography in Practice* (1941) report temporary inversion of the T-wave in Lead I of the electrocardiogram in a boy 13 years of age suffering with severe anemia, and likewise temporary inversion of the T-wave has been observed following the ingestion of ice water.[16]

The effect of drugs on the T-waves has been studied extensively; as an illustration, it is well known that digitalis may cause inversion of the T-waves though the more pronounced effect is on the RT segment. One of my colleagues [17] here in Jacksonville has seen inversion of the T-wave in Lead II apparently caused by emetine. Dameshek, Loman, and Myerson [18] report slight flattening of the T-wave following prostigmin and mecholyl. Graybiel and White [5d] show the flattening effect of atropin on the T-wave in Lead II due to vagal inhibition with consequent speeding of the heart rate, and Graybiel [6] has observed inversion of the T-wave in the electrocardiogram of a patient during the administration of sulfanilamide.

Our two patients were both young women suffering from neurocirculatory asthenia. Their electrocardiograms showed temporary, slight inversion of the T-waves in the second lead but in all other respects they were found to be normal. The electrocardiograms were taken with the patients recumbent, and all factors which occasionally produce T-wave inversion, such as drugs, tobacco smoke, overventilation, etc., were, as far as we can tell, eliminated:

Case Reports

H. G., a 24-year-old, unmarried Swedish-American art student, was seen in the outpatient department on September 2, 1936, complaining of precordial aching and irregular pounding of her heart. An electrocardiogram at this time (figure 1*a*) showed marked sinus arrhythmia, whereupon she was referred into the hospital for more careful observation and study. On admission three weeks later she was nervous, had indigestion, was nauseated and quite weak, and still complained of aching and pounding of her heart. The temperature was 98° F., the blood pressure, 120 mm. Hg systolic and 70 mm. diastolic. The heart was normal in size; arrhythmic; rate, 90; sounds of good quality. The hemoglobin was 94 per cent Sahli. The Kahn reaction was negative. The basal metabolic rate was —11 per cent. The other laboratory studies were essentially normal. An electrocardiogram taken three weeks after the first (figure 1*b*) showed slight inversion of the T-wave in the second lead whereas it had been upright before. Another tracing about three months later (figure 2*a*) showed an upright T-wave and moderate sinus arrhythmia again, and additional trac-

ings taken the same day (figure 2*a*) showed slight flattening of the T-waves in Lead II after exercise and marked flattening during deep inspiration and expiration. A final tracing was taken August 30, 1938, two years later (figure 2*b*), showing an up-

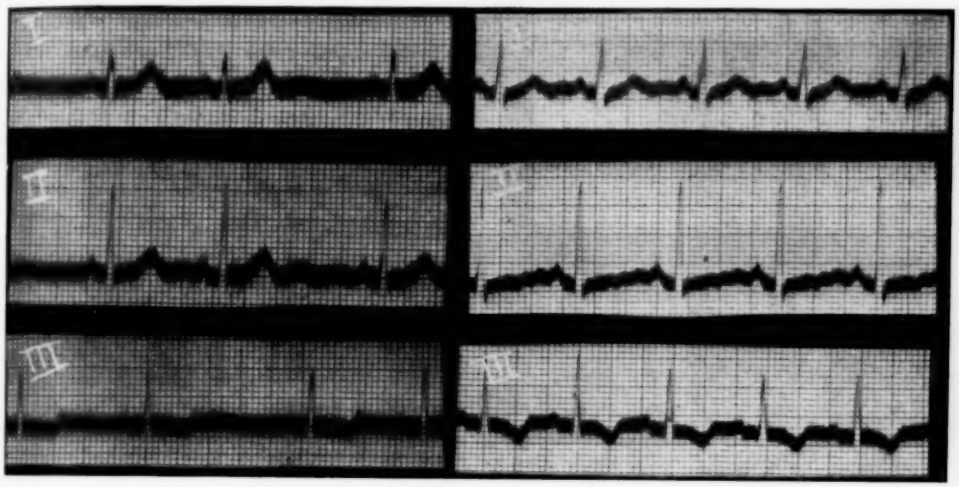

FIG. 1. (*a*, left) September 2, 1936. (*b*, right) September 22, 1936.

right T-wave and moderate sinus arrhythmia. The patient was not examined after this, but it is reported that she is married, has a child, and apparently is getting along satisfactorily.

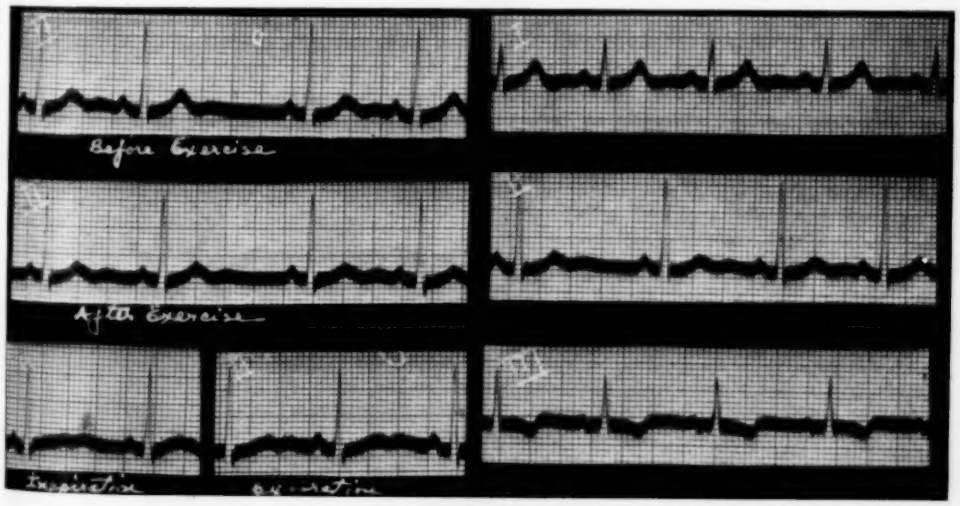

FIG. 2. (*a*, left) December 30, 1936. (*b*, right) August 30, 1938.

L. T., a 20-year-old single student, who was an only child, was first seen on September 1, 1936. In the preceding Spring she had been studied thoroughly in Philadelphia. Because of an electrocardiogram which showed a flat T-wave in the

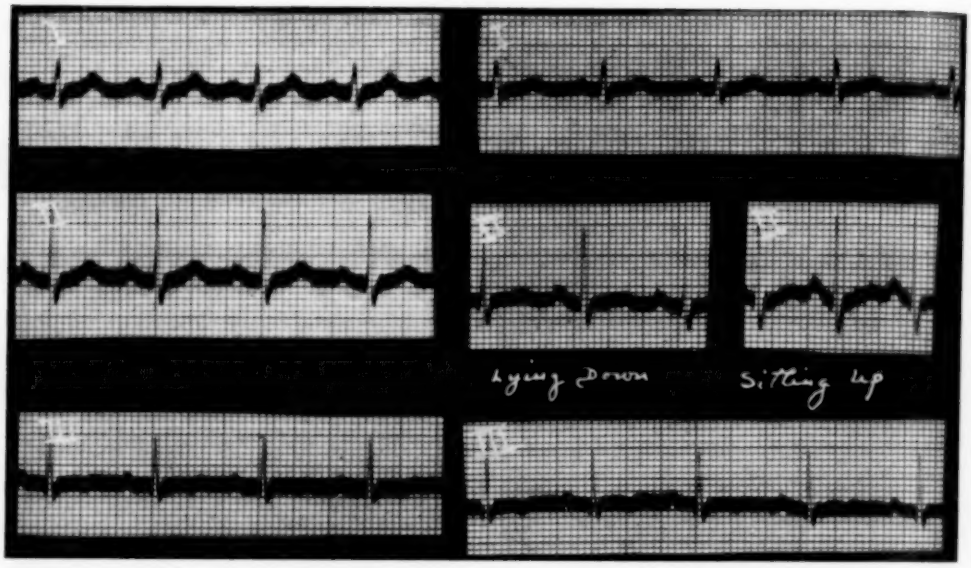

FIG. 3. (*a*, left) September 3, 1936. (*b*, right) May 19, 1937.

second lead, she was told she had "heart trouble." When, shortly after this, her grandmother died of "heart trouble," she became very apprehensive and heart-conscious, complained of pounding of her heart, and suffered from nausea and

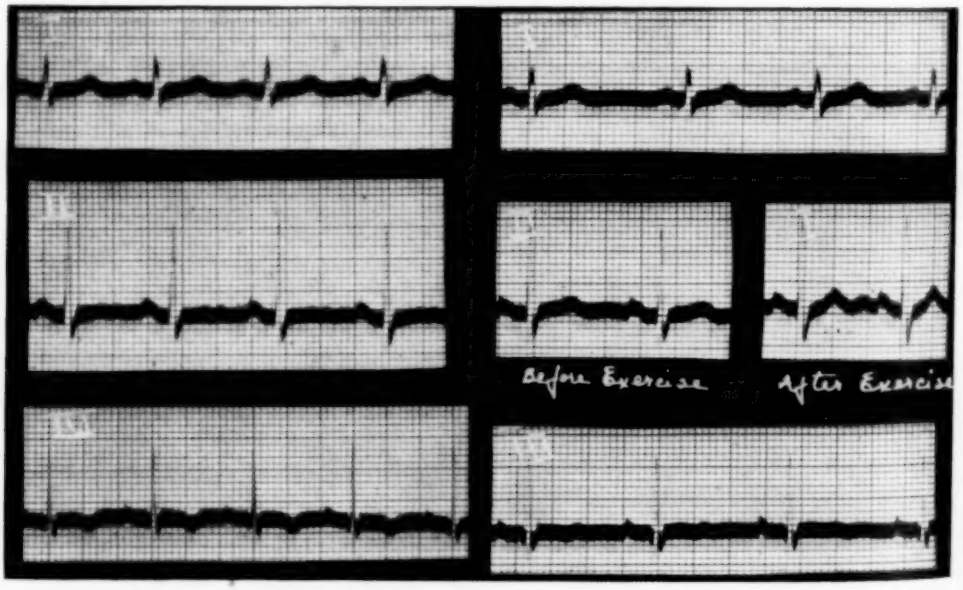

FIG. 4. (*a*, left) August 30, 1938. (*b*, right) October 19, 1940.

vomiting from time to time. On admission to the hospital her temperature was 99.4° F., her blood pressure, 118 mm. Hg systolic and 75 mm. diastolic. The heart size was normal; rate, 90; rhythm normal; sounds of good quality with a soft non-

transmitted systolic murmur heard over the apex. The hemoglobin was 86 per cent Sahli. The Kahn reaction was negative. The basal metabolic rate was — 3 per cent. The other laboratory findings were essentially normal. The electrocardiogram (figure 3*a*) showed a slight inversion of the T-wave in the second lead. Because there was no other evidence of heart disease, she was advised to carry on in a normal manner. She was seen occasionally thereafter and had the complaints which one usually expects from a neurasthenic. Another tracing eight months later (figure 3*b*) showed that the inverted T-wave in the second lead had become upright and after exercise it was even more pronouncedly upright. A third tracing two years after the first (figure 4*a*) showed normally upright T-waves in Lead II. A final tracing four years after the first (figure 4*b*) showed more flattening of the T-wave in Lead II, and, when sitting up, a slight change in pattern. This patient has recently been under the care of a psychiatrist because of fear reaction, but at present she is carrying on in her occupation of teaching school, and has no complaints with regard to her heart.

Discussion

It is interesting to reflect upon the significance of inverted T-waves in instances such as these. The factor causing the inversion is unknown. Likewise the frequency with which we shall encounter inverted T-waves without finding heart disease is not known and will not be determined until we have examined large numbers of healthy people. Perhaps the solution to the problem will be given us by the workers in Aviation Medicine who are now thoroughly studying prospective young aviators.

We have chosen young people for our presentation, for it is easier to determine whether or not there is heart disease in youth. If we are more vigilant, however, we may find the same phenomena in older people.

The discovery of an occasional patient whose whole life has been affected by a mistaken diagnosis of heart disease should remind the physician that it is important to draw a correlation between the clinical and electrocardiographic studies.

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PRIMARY CARCINOMA OF THE JEJUNUM AND THE ILEUM*

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Primary carcinoma of the small bowel challenges our attention, not only because of its rarity, but more particularly because of the fact that an early diagnosis is exceedingly difficult and the results from treatment have to date been very discouraging. Most of the reports on this condition appearing in the literature indicate that very few diagnoses have been made before metastasis and obstructive symptoms have appeared, making the prognosis very unfavorable.

Reported Incidence

The reported incidence varies according to whether necropsy material, operative reports, or a combination of the two have been studied. It appears that carcinoma of the small bowel comprises from 0.47 per cent to 6 per cent of the carcinomata of the entire gastrointestinal tract, according to different reports. Ewing's [1] estimate of 3 per cent probably is a correct determination. Johnson,[2] in a series of 41, 883 autopsies at the Vienna General Hospital, found 343 cases of intestinal carcinoma of which 10 were primary in the small bowel and all located in the ileum. Schofield [3] noted only 36 cases of small intestinal carcinoma in 140,000 autopsies. Mayo and Nettrour [4] reported 76 cases seen at the Mayo Clinic prior to February 1, 1936. In 31 of these cases, the primary growth was located in the jejunum, and in 18 the location was in the ileum; in 21 it was in the duodenum. They stated that the number of reported cases up to the time of their study was 250. Horsley,[5] in a review of the literature from 1932 to January 1, 1941, found 236 cases of adenocarcinoma of the jejunum and the ileum, and seven in Meckel's diverticulum.

At St. Luke's Hospital and at St. Mary's Hospital in Duluth there are seven cases, in 230,000 hospital admissions, in which primary carcinoma of the jejunum or ileum was verified at operation or at necropsy. Of these, three were in the jejunum and four in the ileum. There were two additional cases reported in which the surgical and pathologic reports were not satisfactory for an unqualified diagnosis and one case in which an autopsy was not obtained to verify the clinical diagnosis. There were no cases of primary carcinoma of the duodenum, if six cases of primary carcinoma of the ampulla of Vater were excluded. This distribution corresponds closely with Raiford's [6] and Ewing's [1] statements that 50 per cent of all primary carcino-

* Received for publication December 22, 1942.
Presented before the Minnesota Society of Internal Medicine, May 23, 1942.
From the Department of Internal Medicine, Duluth Clinic.

mata of the small bowel, including those primary in the ampulla of Vater, were in the duodenum and that the remainder were divided between the jejunum and the ileum, being somewhat more numerous in the ileum.

The predominant type of carcinoma found is of the adenomatous type, which occurs in over 90 per cent of operated cases. It is usually of the annular, constricting type, but may be polypoid, ulcerating and nonconstricting. Rarer types such as melanocarcinoma and scirrhous carcinoma have been reported.

Metastasis occurs early and, according to Mayo and Nettrour,[4] occurs first in the mesenteric lymph nodes and peritoneum, then in the liver, lungs, long bones, and dura mater of the spinal cord, in the order named.

Symptomatology

The symptomatology varies according to the stage and location of the lesion. From a review of reported cases, it would appear that the onset of symptoms is most insidious and the duration variable, ranging from a few weeks to several years. In the early and nonobstructive stage, the symptoms and signs may be vague and indefinite, accounting for the fact that the diagnosis is seldom made until obstructive signs appear, or persistent, unexplained anemia focuses the attention on the small intestine.

Antedating the obstructive stage, one usually finds weakness, early fatigability, weight loss and anemia, partly due to interference with the normal function of the small bowel, both as to motility and absorption, and also due to the occult blood loss. Even in high grade anemia, tarry stools are seldom encountered, but occult blood in the feces is invariably found if sufficient specimens are examined.

As the growth increases and narrows the lumen of the intestine, symptoms and signs of obstruction, such as pain, abdominal distention, nausea or vomiting appear. These may be intermittent in character, lasting from a few seconds to several hours, but usually increase in frequency and severity as the obstruction increases. Pain may vary from a vague discomfort to severe colicky pain, depending upon the degree of stenosis. It is usually located in the umbilical region and the lower quadrants of the abdomen. The time of onset is inconstant but may come one to two hours following the ingestion of food. Steady pain in the epigastrium is a late symptom and probably results from metastasis to the retroperitoneal lymph glands. Vomiting is a variable symptom in the early stages but is almost always present as the obstruction increases. It is especially severe when the growth involves the upper jejunum. Constipation is frequent, although diarrhea alternating with constipation or normal bowel movements may be present. Loss of weight is a prominent and constant finding and may be the main reason for seeking medical advice. There was a reported average weight loss of 25 pounds in one series.[4]

Physical Findings

The physical findings depend on the stage of the disease. Few, if any, positive physical findings are noted in the early stages, but later, the evidence of weight loss and anemia appears. Distention may be variable but is usually present in the later stages. Visible and reverse peristalsis are occasionally seen. An abdominal mass may or may not be palpable and, if present, indicates an advanced stage.

Diagnosis

The diagnosis of a malignant lesion of the small intestine may be inferred from a careful analysis of the history, physical and laboratory findings, but a definite diagnosis can only be made roentgenologically or on exploratory operation. Until recent years, few cases have been diagnosed prior to the time of operation or autopsy. Lately, however, numerous reports are appearing in the literature [7] in which a definite visualization and localization of the lesion have been made preoperatively by means of careful roentgen studies.

Roentgenologists are making a definite advance in the study of the small bowel and in the demonstration of pathologic lesions within the bowel. The technic is exacting and time consuming and cannot be used as a routine means of examination in many roentgen laboratories. However, it offers the only means of visualizing a lesion and making a positive diagnosis. In the hands of skilled roentgenologists, only about 25 per cent of these lesions can be demonstrated, but the indirect evidence may be sufficient to make a fairly accurate diagnosis in a larger percentage of cases. Where there is clinical evidence of a small bowel lesion, or where it is suspected and the roentgen findings are negative, exploratory operation is necessary and warranted, if the results of surgical treatment are to be improved.

It must be kept in mind that concurrent disease, such as cholecystitis, duodenal ulcer, diverticulosis, etc., may confuse or overshadow the picture produced by the small bowel lesion and may even confuse the surgeon at the time of operation, unless a careful exploration is made.

Treatment

The treatment of choice is radical resection, with end to end or lateral enteroanastomosis. If this is impracticable or impossible, a palliative enteroanastomosis around the growth is indicated. Postoperative roentgen therapy may be justified.

The surgical mortality reported has been high, ranging from 20 per cent upward.

Prognosis

The prognosis, regardless of whether the growth is removed or not, is discouraging. Mayo and Nettrour [4] report that only four patients of their series were alive at the time of their study. Two others had lived more than

seven years. Of those who had died, the average length of life was 17.6 months. Hellstrum, cited by Hundley and Bates,[8] reported a definite cure in 16 per cent. Most of the individual living cases have not had a sufficiently long follow-up to give an accurate picture of the real prognosis.

Case Reports

Case 1. Mr. A. R., aged 53, entered St. Mary's Hospital on July 21, 1921. About 18 months before admission, he developed more or less constant indigestion. He had distress in the epigastrium after eating, especially in the afternoon and evening. Two months prior to hospitalization he began vomiting, usually between 10 and 12 o'clock at night. There was moderate weight loss.

The past history and the family history were negative.

The physical examination revealed a well developed, reasonably well nourished individual, and was not remarkable except for tenderness in the epigastrium. There were no masses and no distention. The roentgen examination of the stomach and duodenum was negative. There was a slight reduction in hemoglobin (70 per cent) and red blood count (3,490,000). There was an absence of free hydrochloric acid and total acid of 12 units. There was a 3+ positive benzidine reaction.

One week after admission he was submitted to exploratory operation. The upper portion of the jejunum was enormously hypertrophied, and distended proximal to a large, freely movable tumor located 18 inches below the ligament of Treitz. This tumor, which proved to be adenocarcinoma, was annular in type and was associated with metastases in the mesenteric glands. The tumor and mesenteric glands were resected and the proximal and distal ends of the jejunum were united by side to side anastomosis. Convalescence was uneventful and the patient was discharged two and one half weeks after operation. He was readmitted to the hospital a little more than a year later (October 3, 1922), for repair of an epigastric hernia. At that time, no evidence of metastases was found in the abdomen. The history does not indicate definitely the subsequent course, but he died during the latter part of 1923, a little more than two years after his operation.

Case 2. Mr. H. O. S., aged 63, was admitted to St. Luke's Hospital on July 8, 1926, complaining of vomiting, loss of weight, weakness, decreased appetite, and upper midabdominal distress. During the preceding year he had gradually lost his appetite and had lost 60 pounds in weight. For six weeks he had been vomiting about two hours after his noon meal. During this time, he developed a sensation of fullness and distress in the abdomen occurring every two or three days, and relieved by vomiting. This gradually increased in frequency and in amount. There had been no pain, constipation, or diarrhea, and no blood or mucus had been noted in the stool.

The past history and family history revealed nothing of significance. The patient was a well developed, poorly nourished male. The only positive findings on examination were an enlarged gland in the supraclavicular area, a movable dullness in the flank, and a hard but freely movable mass the size of an egg located one inch below and to the left of the umbilicus. No other masses were palpable. His hemoglobin was 45 per cent and erythrocytes numbered 3,200,000. The diagnostic impression was a tumor of the small intestine, and ascites.

After two days' preparation, the abdomen was explored, and a large growth was found in the lower portion of the ileum, producing marked obstruction and distention of the bowel, proximal to the growth. There were numerous metastatic nodules. The tumor, with the involved mesenteric lymph glands, was resected and the distal and proximal loops of the ileum were united by side to side anastomosis. The tumor was an adenocarcinoma.

The postoperative course was unsatisfactory and the patient died on the fourth postoperative day. An autopsy was performed and gave the following anatomical diagnoses: status following removal of primary adenocarcinoma of the first portion of the ileum; metastases to the peritoneum, mesentery, omentum and retroperitoneal lymph glands; cardiac hypertrophy; moderate grade of emphysema; moderate grade of arteriosclerosis; and primary contracted kidneys.

Case 3. Mrs. J. V., aged 48, entered St. Mary's Hospital on February 7, 1930, complaining of heartburn, weakness, general malaise, and weight loss. She had recovered slowly from a severe attack of pleurisy in 1927 and had not felt well since that time. She had been tired, easily exhausted, and had developed with increasing frequency and severity a peculiar burning sensation in the epigastrium, bearing no constant relationship to the ingestion of food. This distress was not relieved by food, but was somewhat alleviated by the use of soda. She had vomited with increasing frequency and severity during the four months prior to admission, and had lost 20 pounds in weight. Her appetite was poor. There had been no bowel disturbance, and she had never noticed any tarry stools.

It was noted in the family history that one brother had died of carcinoma of the stomach.

The patient appeared anemic. Both pupils were irregular, but reacted to light and accommodation. The teeth had all been extracted. The abdomen was negative on palpation. The examination was otherwise normal except for the hemoglobin of 32 per cent; and an erythrocyte count of 2,570,000. Gastric analysis yielded free hydrochloric acid 38 units, total acid 58, and a 2+ occult blood reaction. There was 1+ to 2+ occult blood reaction on stool examination. A pyloric defect brought out on stomach fluoroscopy was thought to be due to a pyloric ulcer.

A diagnosis of malignancy somewhere in the gastrointestinal tract was made. Several blood transfusions were given and an exploratory operation was performed three weeks after admission, February 28, 1930. An annular adenocarcinoma of the ileum, about six inches from the ileocecal valve, was found. There was no evidence of abdominal or peritoneal metastases. The lesion, which was attached to the bladder, was removed; the bladder was closed, and a lateral anastomosis made between the ileum and the cecum. The patient died on the fourth postoperative day of bronchopneumonia.

The anatomical diagnoses at postmortem examination were: status after laparotomy and resection of carcinoma of the small intestine; beginning peritonitis; edema of the lungs; bronchopneumonia; pleural adhesions; chronic fibrosing tuberculosis of the left apex; cloudy swelling of the myocardium and kidneys; fatty changes in the liver; edema of the ankles.

Case 4. Miss D. A., aged 48, was admitted to St. Luke's Hospital on April 18, 1933. Three weeks before admission she developed an acute pain in the lower abdomen, which came on while walking and became less severe when she went to bed and remained quiet. Motion of the legs, especially the right, induced additional attacks. Her appetite had been poor, but there had been no food intolerance. Constipation became a marked feature after the onset of the attacks of pain. The stools had been dry and lumpy, but there had been no gross evidence of blood. Frequency of urination was also noted.

The past history was essentially normal except for some palpitation and slight dyspnea on exertion.

The physical examination showed a well developed, but poorly nourished woman, with a wrinkled, dry skin. There were some dental caries. Nothing abnormal was noted in the heart or lungs. On palpation of the abdomen no masses or tenderness were noted, but there was considerable distention. On rectal examination, tenderness was noted high in the right flank. The blood pressure was 134 mm. Hg systolic and

80 mm. diastolic. The temperature was 101° F., the pulse 96, and respiration 20. The hemoglobin (83 per cent) and red count (4,330,000) were normal, but there was a moderate degree of leukocytosis (13,200). The differential count showed some elevation of polymorphonuclear leukocytes (75 per cent polymorphonuclear cells, and 25 per cent lymphocytes). Roentgen examination of the abdomen showed obliteration of the right psoas and right kidney shadows and a slight curvature of the lumbar spine to the left.

The impression was that she had a low grade intestinal obstruction of undetermined cause, but after two days of observation a palpable mass was felt in the lower right quadrant and the diagnostic impression was changed to an inflammatory tumor, either in the appendix or the ovary.

Exploratory operation was carried out on the fourth day after admission and a tumor constricting the lumen of the bowel to one-half its normal diameter, and associated with palpable glands in the mesentery, was found in the ileum about 18 inches from the ileocecal valve. The tumor, together with the mesenteric glands, was excised and the two ends of the ileum were united by side to side anastomosis.

The pathologist reported an adenocarcinoma of the ileum with metastases to the mesenteric lymph glands.

The patient died on the ninth postoperative day. A postmortem examination was not granted.

Case 5. Mr. J. V. B., aged 46 years, was admitted to St. Mary's Hospital on September 25, 1934, complaining of pain in the epigastrium, flatulence, loss of weight and weakness. He stated that he had been bothered with "gas on the stomach" for many years. In November 1933 he sustained an injury to his abdomen, and from that time on he had noticed pain in the epigastrium. This pain was nearly constant, seemed to begin in the back and sides and radiate to the front; it was sharp in nature, and was not relieved by alkalis. Duodenal ulcer had been diagnosed by several physicians after roentgen examinations, but he obtained no relief on the usual ulcer régime. A progressive constipation was noted, but there was no evidence of blood in the stool. There had been no nausea or vomiting. He had noted a loss of weight and a loss of strength.

The past history was noteworthy only in that an appendectomy had been performed in 1930, and that he had had an untreated chancre and gonorrhea in 1910.

The family history was not contributory.

The patient, on examination, appeared thin, pale and was small in stature. All the teeth had been extracted. There were no palpable glands in any area. Chest examination was not abnormal. Abdominal examination showed a fine, faint, transverse scar in the right lower quadrant. The lower abdomen was slightly distended and difficult to palpate, but the upper abdomen was soft and there were no masses noted. A rectal examination was negative.

The laboratory data showed a low hemoglobin (38 per cent), a slightly reduced red count (3,900,000) and a normal leukocyte count (8,000). The differential count: Young polymorphonuclear leukocytes 7 per cent, normal polymorphonuclear leukocytes 81 per cent, and lymphocytes 12 per cent. The stool was negative for occult blood.

Roentgen studies of the stomach and large bowel were negative. There were 50 units of free hydrochloric acid and 64 units of total acid, with a negative occult blood reaction in the stomach contents.

Exploratory operation was advised and performed on October 4, 1934. A large firm mass was found in the jejunum, 18 inches below the ligament of Treitz; this mass was densely adherent to the sigmoid, and a few small glands containing metastases were noted in the mesentery. The jejunum was divided above and below the growth and a side to side anastomosis was performed. Because of the adherence of

the mass to the sigmoid, the lesion, together with the sigmoid, was brought out through the abdominal wound in the manner of a first stage Mikulicz operation. The growth was later removed.

The pathologist reported adenocarcinoma of the small intestine, malignancy grade III (graded on a basis of I to IV).

The patient recovered from the operation, and was discharged from the hospital on November 22, 1934. He died on March 27, 1935, and postmortem examination revealed a recurrence of the carcinoma at the operative site. The anatomical diagnoses were: (1) Status after resection of carcinoma of the jejunum and after resection of a portion of the sigmoid. (2) Adenocarcinoma recurring in the wall of the fistulous tract leading to the sigmoid. (3) Old pleural adhesions on the right. (4) Brown pigmentation of the heart, fibrosis.

Case 6. Mrs. A. W. L., aged 71, entered St. Mary's Hospital on August 24, 1941. She had been under the observation of her physician since March of 1935 because of attacks of heartburn, slight vomiting and a secondary type of anemia. There had been numerous roentgen studies of the gastrointestinal tract with negative findings. She apparently got along fairly well until July of 1939 when she again consulted her physician because of a loss of weight of 25 pounds during the preceding six months. She had also noticed a slight epigastric distress after eating and some blood in the stool. There had been no disturbance in bowel function. On this occasion, roentgen examination revealed numerous diverticula of the large bowel and it was concluded that the blood in the stool was coming from this condition. Her hemoglobin was 55 per cent, the red blood count 2,360,000. The attending physician had the impression, at that time, that she had a carcinoma, but was unable to demonstrate it by roentgen studies of the stomach and colon. She was treated on the basis of a severe hypochromic anemia with intermittent periods of improvement and remission until August of 1940 when further search for carcinoma was made, without making a definite diagnosis.

One year later, the history reveals that she had tenderness in the lower left quadrant, but that no masses could be palpated. There had been an increase in the abdominal pain which was now located in the epigastrium, the umbilical region and both the right and the left lumbar regions of the abdomen. She had also developed frequent nausea and a continuation of weight loss persisted, her weight having dropped to 96½ pounds.

Again further studies, including colon fluoroscopy, were made without demonstrating malignancy. However, because of her condition and the strong suspicion of malignancy, hospitalization and exploration were advised. After admission to the hospital, a soft palpable and freely movable mass in the lower right quadrant was noted. The preoperative diagnosis was either carcinoma of the cecum or a tumor of the terminal ileum. Following transfusion, exploratory operation was performed on August 30, 1941. A large firm mass was found at the lower end of the ileum partly adherent to the transverse colon. The mass was about the size of a small orange and there were a number of hard firm lymph nodes in the mesentery. The tumor was resected and a side to side anastomosis performed.

The postoperative course was uneventful, and she left the hospital on September 13, 1941. Information to date indicates that she is getting along very well.

The pathologic report showed adenocarcinoma of the ileum, malignancy grade III (graded on a basis of I to IV).*

* The patient was readmitted to St. Mary's Hospital on November 28, 1942 with a recurrence of partial intestinal obstruction. Abdominal exploration revealed recurrent adenocarcinoma of the ileum in the region immediately adjacent to the one where the previous growth had been removed. This growth was resected and an enteroanastomosis performed.

Case 7. Mr. R. H. S., aged 26 years, was admitted to St. Mary's Hospital on February 11, 1942. For two months before admission he had noted an almost constant fullness and burning in the lower abdomen, which was not influenced by ingestion of food, time of day, etc., but was relieved by the use of aspirin. Associated with this there had been considerable rumbling in the abdomen and some belching. His appetite had gradually decreased. He had lost 14 pounds in weight, noticed considerable fatigue on slight exertion, and on several occasions there had been nausea and slight vomiting, but no bowel disturbance.

The past history yielded nothing of significance except that he had had rheumatic fever in 1937.

There was no pertinent information elicited in the family history.

The physical findings were not remarkable except for a blood pressure of 150 mm. Hg systolic and 90 mm. diastolic. There was slight tenderness in the lower abdomen, but no distention nor palpable masses.

Ident.	Age	Main Symptoms	Duration of Symptoms	Weight Loss	Blood Counts	Operative Procedure	Pathological Report	Result
A. R.	53	Indigestion, abdominal distress, P.C. especially in p.m., vomiting, weight loss.	18 mo.	?	70% 3.49 M. 7,000	Removal of growth, entero-anastomosis	Adenocarcinoma of jejunum	Died 2 yrs. P.O.
H. O. S.	63	Vomiting, weight loss, weakness, anorexia, epigastric distress.	1 yr.	60#	45% 3.2 M	Resection entero-anastomosis	Adenocarcinoma of ileum	Died 4 days P.O.
Mrs. J. V.	48	Heartburn, weakness, fatigue, general malaise, weight loss, anorexia, vomiting.	2 yrs.	20#	32% 2.57M 7,000	Resection ileocecal anastomosis	Adenocarcinoma of ileum	Died 4 days P.O.
Miss DA	48	Acute pain in lower abdomen, anorexia, constipation.	3 wks.	?	83% 4.33 M 13,200	Resection entero-anastomosis	Adenocarcinoma of ileum	Died 9 days P.O.
J. V. B.	46	Epigastric pain, flatulence, weight loss, weakness.	10 mo.	10#	38% 3.9 M 8,000	Resection of growth and part of sigmoid, entero-anastomosis	Adenocarcinoma of jejunum	Died 6 mo. P.O.
Mrs. AWL	71	Weight loss, anemia, anorexia, weakness, blood in stool, epigastric distress and abdominal pain; occasional vomiting.	3 yrs.	25#	45% 2.66M	Resection entero-anastomosis	Adenocarcinoma of ileum	Living 9 mo. P.O.
R. H. S.	27	Lower abdominal pain, rumbling in abdomen, belching, weight loss, weakness, occasional vomiting.	4 mo.	14#	89% 4 84 M 16.000	Palliative entero-anastomosis around growth	Adenocarcinoma of jejunum	Living 1 mo. P.O.
Avg.	51		15 mo.	26#	57% 3.57 M			6 mo. 6 mo.

Laboratory data showed a normal hemoglobin (89 per cent) and erythrocyte count (4,840,000) with a moderate leukocytosis (16,000). There were 80 per cent polymorphonuclear leukocytes and 20 per cent small lymphocytes in the differential count. A blood smear showed lymphocytes which appeared immature. In view of this a sternal marrow puncture was made. The myelogram was normal except for a slight increase in the myelocytic series, which suggested a toxic or infectious factor. Agglutination tests were negative. Heterophile antigen test showed an atypical agglutination in dilution of 1:20 and a few days later a definite agglutination in dilution of 1:5. There were 40 units of free hydrochloric acid and 56 units of total acid with a negative benzidine reaction in the stomach contents.

Under symptomatic treatment, a definite improvement took place and the patient left the hospital on March 3, 1942. On April 13, 1942 he returned to his physician complaining of distention of the abdomen and lack of strength. This time his blood counts were essentially normal. Four days later he developed severe cramp-like pain in the abdomen. The abdomen, on examination, was distended and there was a small hard nodule in the umbilicus. This nodule was removed for microscopic examination, and the pathologist reported adenocarcinomatous infiltration of an umbilical scar.

He was readmitted to the hospital on April 21, 1942 with a diagnosis of adenocarcinoma of the small bowel with partial intestinal obstruction. The abdomen was explored on April 24, 1942 and a large annular adenocarcinoma of the jejunum was found, producing a high grade of obstruction and associated with extensive metastases to the peritoneum, mesenteric lymph glands, etc. A palliative enteroanastomosis was performed which relieved the obstructive symptoms. The patient recovered from the operation but had considerable pain from the metastatic lesions.*

Comments

From a study of the above case reports, we find that there were three cases of adenocarcinoma of the jejunum and four in the ileum. There were four males and three females with ages ranging from 27 years to 71 years, the average age being 51 years. The duration of symptoms was from three weeks to three years or more, averaging 15 months. The main symptoms were weight loss (varying from 10 pounds to 60 pounds and averaging 26 pounds), weakness, fatigue, abdominal pain, anorexia, vomiting and anemia.

The hemoglobin varied from 32 per cent to 89 per cent with an average of 57 per cent; the red cell count numbered from 2,570,000 to 4,840,000, with the average being 3,570,000.

Resection and enteroanastomosis were done in six instances and palliative enteroanastomosis around the growth in one case. Metastases to the mesenteric nodes were present in all cases and involvement of the omentum and peritoneum was found in one instance. There were three postoperative deaths. Two patients are still living and the other two lived six months and two years respectively. The pathological diagnosis in each instance was adenocarcinoma.

These results are discouraging and indicate a need for a greater consciousness on the part of the physician of the early symptoms of carcinoma of the small intestine. It is important that all patients presenting vague and indefinite gastrointestinal symptoms and an unexplained anemia be considered as potential cases of small bowel malignancy. In each instance where the patient presents symptoms of weakness, early fatigability, weight loss and anemia, and where these cannot be satisfactorily explained, a careful and painstaking roentgen examination should be made, not only of the stomach and colon but also of the small intestine. Exploratory operation is warranted in cases where sufficient evidence points to a lesion of the small bowel even if a positive diagnosis is not present. It is only by following

* This patient died four and one-half months postoperatively.

such a procedure that we will be able to make earlier diagnoses and obtain more satisfactory results from surgical treatment.

Summary

1. Primary carcinoma of the jejunum and ileum is relatively rare and difficult to diagnose.

2. Adenocarcinoma of the annular, constricting type is predominantly found.

3. Few cases are diagnosed before obstructive symptoms have appeared and metastases are present.

4. An analysis of seven cases of primary carcinoma of the jejunum and ileum has been presented.

5. Careful evaluation of early symptoms, a thorough roentgenological study of the small bowel and exploratory operation are necessary to improve on present results.

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POSTGASTRECTOMY GASTRITIS*

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Now that subtotal gastrectomy has survived two decades it is becoming obvious that the resultant alteration in contour and function of the stomach carries with it an appreciable morbidity. We are not debating the curative value of the procedure. Aside from the many mechanical complications about which much has been written critically and constructively by surgeons, there is a group of medical problems relegated to the internist for management which we have discussed in a recent publication [1] and which we will merely list:

1. Recurrent or anastomotic ulceration.
2. Hemorrhage from ulceration or gastritis.
3. Edematous stomal obstruction resulting from ulceration, hypoproteinemia or gastrojejunitis.
4. Hematopoietic disturbances, anemia.
5. Motor and secretory dysfunction:
   a. Reservoir loss.
   b. Trituration abnormality.
   c. Digestive deficiency.
   d. Gastrogenic diarrhea.
6. Deficient absorption, particularly of iron and calcium.
7. Manifestations of vitamin deficiencies, including glossitis.
8. Chronic jejunitis.
9. Chronic gastritis.

We are limiting our discussion to the last entity listed. It has received the least attention in the literature, is rarely considered by the clinician attempting to explain the discontent of his patient after gastrectomy, and is declared by Schindler [2, 3] to be "the most frequent disease of the postoperative stomach."

With the increased use of gastroscopy one would have expected more frequent comment. That the altered stomach is gastroscopically difficult to study may account for this hesitancy.

There is no syndrome characteristic of this gastritis following gastrectomy, for like the other gastritides it may mimic any of the other gastroenteric lesions, nor is it a specific variety in itself. Any or all gastritides individually or superimposed one on the other may involve a portion or the

* Delivered before the Regional meeting, American College of Physicians, New Orleans, April 16, 1943.

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entire gastric remnant and even extend into the jejunum. For this reason it seems logical to classify separately this chronic postoperative gastritis and to modify our gastroscopic diagnosis with a descriptive subclassification into superficial, hypertrophic or atrophic. The latter is rarely encountered.

It has been suggested that there is a characteristic color to the mucosa. Schindler [2] has referred to it as "purplish, red or claret colored, occasionally dark red." In our experience the degree of redness of the mucosa seems related to the hematopoietic status of the patient.

We have observed that the gastritis following gastrectomy is most frequently due to a combination of the superficial and hypertrophic varieties involving the entire remnant but being more severe in the anastomotic area and most frequently extending into the jejunum. A rhythmical stoma was usually but not always absent. (Achlorhydria is the rule.) The gastric rugae are tremendously edematous and have a turgescent red color often pitted with minute erosions, at times covered with yellowish-gray mucus. The deep separating furrows are filled with purulent material.

Schindler has related the occurrence to stomal inadaptation or bacteriological factors.[2] Wanke [4] considers this gastritis a continuation of a presurgical status. We would like to suggest the possibility that a combination of causative factors exists, including:

1. A debilitated, often "depleted," chronically ill ulcer patient.
2. Severe trauma, extensive gastrectomy.
3. A difficult rehabilitation period (fraught with the factor numbers 4, 5, 6, and 7 in our listing earlier in this paper).
4. Achlorhydria and the associated bacterial flora.
5. A poorly functioning stoma, or other surgical defect.
6. The use of hydrochloric acid so frequently resorted to for relief after gastrectomy.
7. Improper dietary regulation.

Any or all of these are all too frequently encountered.

Schindler gives a gloomy prognosis.[2, 3] We are more optimistic. We agree that results with roentgen therapy are definitely unsatisfactory. We have had promising response to dietotherapy. We advocate an ambulatory ulcer régime with copious vitamin supplement, especially ascorbic acid and the various factors of the vitamin B complex. We are inclined to feel that vitamin K has benefited the erosive variety. Liver extract (crude) seems an essential parenteral aid; ventriculin may be tried. Gastric lavage, for which few of us have much respect, has been a source of considerable relief to many. Most surprising is the fact that the burning pain in these achlorhydrics is accentuated by hydrochloric acid and relieved by alkali.

We seldom suggest further operation. Retained silk sutures with severe associated ulceration, stomal obstruction or other mechanical factors, of course, demand operative correction.

A typical instance in our experience is the following case report.

Case Report

Case J. T. (October 5, 1942), a 57-year old woman with a medically refractory duodenal ulcer of five years' duration, submitted to a subtotal gastrectomy in January 1939. In the 18 postoperative months there was a weight loss from 187 pounds to 123 pounds associated with a definite dyspepsia. There was immediate postprandial discomfort, delayed burning pain and intermittent diarrhea. The use of hydrochloric acid accentuated the pain and did not relieve the diarrhea. A moderately severe glossitis and chilitis developed in 1941 and persisted despite supplemental riboflavin.

When we first saw this patient she was debilitated, underweight (120 pounds), anemic (red blood cells 3,000,000, hemoglobin 9.5 gm.), achlorhydric after histamine, with secondary skin changes suggestive of early pellagra, chilitis and glossitis. Her abdominal musculature was atonic, the abdomen protuberant and flaccid. Reflexes suggested lateral column changes.

The gastroscopic examination showed a diffuse gastritis with edematous folds and purulent exudate; eroded areas were visualized on the hypertrophied rugae (figure 1).

Fig. 1. Appearance of the stomach on gastroscopic examination.

Therapeutically she was given a high protein, relatively bland diet with intermittent feedings approximating 4,000 calories daily. Suspecting alkaline and bacterial interference with vitamin B and C utilization, these were given parenterally supplemented by liver extract. A combination of an antispasmodic and aluminum hydroxide replaced the hydrochloric acid she had been using.

The response in this case was surprisingly satisfactory; the patient became asymptomatic, gained 10 pounds in a three month period, had a satisfactory hematopoietic response and satisfactory improvement in the mucous membrane.

We admit the possibility of an avitaminosis not related to the gastrectomy, but the association seemed too much a part of the clinical picture to be denied its part. Many of our cases are not so responsive.

Conclusions

1. An evaluation of the failures after gastrectomy requires diagnostic gastroscopy which is the only entirely satisfactory method of studying the gastric mucosa; thereby a diagnosis of postoperative gastritis may be made.

2. The gastroscopic findings of chronic postoperative gastritis are briefly presented.

3. A therapeutic régime for this type of gastritis is suggested.

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THE TREATMENT OF ATTACKS OF SINUS TACHYCARDIA WITH PROSTIGMIN*

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Sinus tachycardia, or simple tachycardia as it is otherwise known, is defined by Herrmann [1] as "a sustained increase in the heart rate beyond the normal limits for the individual." Usually a rate of 100 beats per minute in a person over the age of 18 is evidence enough to justify a diagnosis of sinus tachycardia. It must be remembered that such criteria are not valid in childhood when the cardiac rate is normally more rapid. Therefore, the age of a patient is an important factor in the estimation of a normal heart rate. The condition is common, is usually of short duration, often passing unnoticed by the patient himself.

The rate at which the heart beats depends upon the balance between the sympathetic and parasympathetic nerves, i.e., the accelerators versus the vagus (slowing action). Sinus tachycardia, accordingly, may be caused by either an increase in sympathetic stimulation or by a decrease in vagal tone. According to White,[2] the etiologic factors include a combination of these two elements rather than either one alone.

Etiology

The etiology of simple tachycardia covers a wide range. At times it may be purely physiological, as when it develops as a result of physical exercise, emotional excitement, or digestion of food. The slightest incident may provoke an attack which will last from a few minutes to many hours. Neuro-circulatory asthenia often precipitates such attacks, as do various drugs such as the nitrites, atropine and epinephrine. Active infections including tuberculosis, rheumatic fever and a host of others, thyrotoxicosis, various anemias and types of cardiac disorders, all accelerate the pulse rate. Shock of varied etiology is associated with sinus tachycardia. Pregnancy not uncommonly produces a sinus tachycardia persisting for many months.

Mental shock is perhaps one of the most common etiologic factors in the production of *attacks* of simple tachycardia. It may produce an acceleration of pulse lasting for days and weeks without cessation.[3] In modern-day life in which emotional imbalance is so prominently displayed, it is probable that more and more cases of such attacks will be recognized and will demand treatment. Undoubtedly in these instances an undue lability of sympathetico-parasympathetic balance is at the root of the condition.

Symptomatology

The symptoms displayed by an individual with sinus tachycardia vary from little more than the objective sign of an increased pulse rate to a syn-

* Received for publication December 9, 1942.

drome which may completely incapacitate the patient. During such a tachycardia of physiological origin an individual may be aware of a hard, thumping sensation in his chest, a condition which usually does not unduly disturb him since he is generally aware of its origin. On the other hand, some persons complain of almost unbearable palpitation, moderate to severe dyspnea, precordial pain, dizziness, and visual disturbances. If such attacks persist in their frequency, fear and anxiety will well induce or precipitate a cardiac neurosis. Some patients, suffering from such repeated attacks of essentially benign nature, have actually become cardiac invalids, and unnecessarily so. In some instances, such invalidism has been fostered by the attending physician, who may have found it difficult or impossible to abort the attacks. It is these cases, essentially sinus tachycardia, *occurring in attacks,* which produce symptoms of fear and anxiety, which recur or are prolonged, that demand some form of therapy.

Differential Diagnosis

Ordinarily the diagnosis of sinus tachycardia is a simple procedure, but should any doubt exist in the physician's mind, electrocardiographic studies are imperative for the proper conduct of the case. In differentiating from other forms of tachycardias, it should be remembered that sinus tachycardia has a gradual onset, a slight rate variation of the beat, as compared with the abruptness and marked regularity characterizing paroxysmal auricular or nodal tachycardia. It seems that many of the attacks seen by the general practitioner daily, and called paroxysmal auricular tachycardia are really attacks of sinus tachycardia. Especially is this true when the heart rate is not above 150 to 160.

Cases in which the increased pulse rate is due to psychogenic factors or an emotional imbalance generally exhibit a marked reduction in the pulse rate during sleep. Instances due to drug administration are easily singled out by a careful anamnesis.

Should an increased heart rate be unduly prolonged, e.g., for more than a few days or weeks, and should the patient exhibit no undue amount of emotional symptoms, the suspicion of a more serious disturbance is aroused. This might assume the form of low grade hidden infections of a chronic nature, such as pyorrhea alveolaris, dental caries or chronic tonsillitis. Metabolic conditions may likewise induce a long-continued tachycardia, among these being obesity and hyperthyroidism. A thorough physical examination should exclude organic conditions with which sinus tachycardia is usually associated.

Treatment

Sinus tachycardia requires no treatment when it produces no distress, is of short duration, and occurs infrequently. The great majority of patients exhibiting an increased heart rate, however, include those in whom the etiologic factors responsible are easily recognizable and can be ameliorated

or obviated. If the immediate cause cannot be discovered, then symptomatic or physiologic therapy is indicated to create autonomic balance. The use of carotid or ocular pressure is attended by success in a large percentage of cases. Still others respond favorably to a short period of bed rest, psychotherapy or sedation. However, there is a not inconsiderable group of cases of sinus tachycardia, the etiology of which cannot readily be determined, which will not respond to these measures. When this occurs and rapid results are desired, one may resort to a vagus stimulating drug, such as pilocarpine or acetylcholine. The latter, in one or another of its more stable forms, is the one preparation which will rapidly abort such an attack. Unfortunately, the side-effects of such a drug are often such as to preclude its general use. Marked flushing of the face and upper trunk, excessive lacrimation, salivation and perspiration, besides a rapid fall in blood pressure and even collapse are commonly observed through the use of these agents.

It was to obtain results without these undesired side-effects that prompted the authors to employ prostigmin, a cholinergic drug, for the relief of certain supraventricular tachycardias.[4] The conclusions of others [5, 6] were confirmed, namely that prostigmin methylsulfate, 1:2,000, had no demonstrable effect on the normal heart. Confirmation by other authors [7, 8] subsequently showed that this parasympatheticomimetic drug was effective in the amelioration of certain tachycardias. Accordingly it was decided to extend the previous work,[4] especially as applied to attacks of sinus tachycardia in which no etiologic factor was readily demonstrable. Battro is of the opinion that this treatment is more physiological than any other.[9]

Method

The series of cases presented here was carefully chosen from private practice and from the Greenpoint Hospital Outpatient Department. All patients exhibited definite symptoms, but none of the chosen cases responded to psychotherapy or bed rest for a period of 30 minutes. Many claimed to have had previous attacks and a majority had had symptoms for some hours or days before being seen. One-half of the cases received control injections of 2 c.c. of sterile saline solution after a 15 minute rest, but none of these responded by a diminution of the cardiac rate. Where patients were treated in the clinic, the injections and pulse rate determinations were made by the nurse to eliminate any prejudicial readings. Patients were not told the purpose of, or the desired effect of the injections. The prostigmin treated cases received *2 c.c.* of the 1:2,000 methylsulfate solution (1 mg.) intramuscularly. Immediately prior to therapy electrocardiograms in the three standard and one precordial lead were taken in almost every case, both to confirm the diagnosis and as a matter of comparative record. Serial electrocardiograms in Lead II were taken after the prostigmin injection at five minute intervals for 20 minutes. It was found that the effect in each case became obvious within this period of time, and usually no further change was noted thereafter. No serious untoward effects were observed in any cases. Mild

symptoms of prostigmin effect included eyelid twitching, sublingual twitching, abdominal cramps, and giddiness. All symptoms, however, were temporary, disappearing within 30 minutes of the time of injection. It is well, however, to remember that atropine is a specific antidote to any possible toxic prostigmin effect. Atropine sulphate, 1/75 mg. given intravenously will immediately offset any undesirable action.

Results

We early learned that if the tachycardia was associated with an obvious organic disease of which a rapid beat was characteristic, prostigmin was of little or no value. In 10 cases of active infection associated with fever such as lobar pneumonia, acute tonsillitis, and acute pyelitis, there was no demonstrable response to prostigmin. A similar failure to lessen the heart rate with this drug was noted when it was administered to 10 normal pregnant women and to 10 patients with thyrotoxicosis. In other words, in cases of *constant tachycardia* associated with definite disease, prostigmin is of no value. It had little or no effect in these cases. We then limited our studies to those who suffered an attack of sinus tachycardia associated with symptoms due to the attack itself. In these cases, the cholinergic effect of prostigmin was of sufficient strength to counteract the stimulus inducing the tachycardia.

The remaining 18 cases in the series suffered a total of 30 attacks of true simple tachycardia. In table 1 are listed the number of cases, their asso-

Table I

Attacks of Sinus Tachycardia

Associated Conditions	Cases	No. of Attacks	Results	
			Good	Poor
Rheumatic heart disease (inactive)	3	7	7	
Hypertension:				
with menopause	2	2	2	
with uterine fibroids and left ventricular failure	1	1		1
with menopause and myocardial infarction	1	6	6	
Menopause	1	2	2	
Recent infectious disease	2	2	2	
Neurosis	4	6	6	
Potential cardiac disease	1	1		1
Endocrine obesity	1	1		1
Gall-bladder disease	1	1	1	
Normal, heavy smoker	1	1	1	
	18	30	27	3

ciated conditions, the number of attacks and the results obtained with the use of prostigmin. The effectiveness of therapy was judged not only by the electrocardiographically demonstrated fall in pulse rate but also by the subjective improvement as expressed by the patient himself. In 27 (90 per cent) of the attacks the pulse rate fell to normal within 20 minutes or less

with complete alleviation of distressing symptoms. Poor results, meaning only slight decrease in pulse rate and little subjective improvement, were obtained in but three instances (10 per cent). In the same patient, the response was always good if repeated attacks occurred.

One patient with associated menopausal disturbances was seen in two different attacks, both of which responded well to prostigmin. This woman gave a history of having had repeated attacks previously, lasting for hours before spontaneous arrest. She was accordingly given 4 prostigmin bromide tablets (each containing 15 mg.) daily as a prophylactic measure. There was an immediate decrease in the average number of attacks from about 12 to but two or three each week. Those which did occur were of short duration and were not particularly distressing to the patient. A patient with endocrinal obesity reacted poorly to prostigmin during one attack. However, when her weight was reduced from 199½ pounds to 155 pounds, no further attacks were noted.

The symptoms exhibited by the patients are tabulated in table 2. It will be noted that the constant symptom is cardiac palpitation, and that fear and

TABLE II

Symptoms Associated with Attacks of Sinus Tachycardia in 18 Cases

Palpitation	18
Fear and anxiety	7
Giddiness or vertigo	3
Dyspnea	2
Nausea and vomiting	2
Precordial pain	1
Blurred vision	1
Sweating	1
Headache	1

Repeated attacks were associated with the same symptoms in the same patients.

anxiety were noted in almost half the patients. Precordial pain was present only in the patient who had suffered myocardial infarction previously. Repeated attacks were associated with the same symptoms in the same patients. In table 3 are summarized the pertinent details of all cases. Five of the more representative case reports are given below, three of which are accompanied by reproduction of the respective electrocardiograms.

CASE REPORTS

Case 1. K. R., female, aged 52 years, a known case of hypertensive cardiovascular disease for 10 years. She was seen on February 12, 1941, when her blood pressure was 270 mm. Hg systolic and 130 mm. diastolic. She had been seized with an attack of palpitation one hour prior to being seen, requiring her to lie down. She was obsessed with fear that she was about to die. The heart rate was only 104 per minute but the patient complained of much distress. After 15 minutes, it was noted that the rate remained fairly constant. Two c.c. of sterile saline solution were injected intramuscularly. While waiting for any possible reaction to this placebo, the electrocardiograph was slowly set up so that the patient did not realize that time was being allowed to pass for observation purposes. After 15 minutes, the patient felt no better and the heart rate remained the same.

TABLE III

Case	Name	Sex	Age	Date	Associated Conditions	BMR	Symptoms	Attack Duration Before Inj. Prostigmin Methylsulfate	Rate of Heart					Reaction	Comment
									Initial	Min. After Inj. of 2 c.c. Prostigmin Methylsulfate					
										5	10	15	20		
1	K. R.	F	52	2–12–41	Hypertension Menopause		Palpitation Fear	60 minutes	104	97	88	87	77	Good	Marked relief
2	A. K.	F	40	3– 5–41	Hypertension Menopause		Palpitation	90 minutes	120	98	88	88	88	Good	Relieved
3	R. W.	F	53	6–21–41	Hypertension Menopause Myocardial infarction	+2	Palpitation Anxiety Precordial pain Dyspnea Nausea Vomiting Blurred vision Vertigo	4 hours	128	100	94	94	82	Good	Relieved
				10–13–41				2½ hours	140	112	88	88	84	Good	On oral prophylaxis with good results
				12–27–41				2 hours	188	124	72	72	72	Good	
				1–14–42				1½ hours	180	152	120	94	88	Good	
				3–25–42				2½ hours	134	102	92	86	84	Good	
				7–12–42				1 hour	154	116	90	84	82	Good	
4	B. G.	F	39	3–19–41	Menopause	+7	Palpitation Sweating	4 hours	104	96	80	72	72	Good	On oral prophylaxis with good results
				1–19–42				34 hours	112	90	84	78	76	Good	
5	M. P.	F	27	9–17–40	Rh. heart disease M.I. M.S. A.I. A.S.	−1	Palpitation Fear Anxiety	2 hours	142	102	96	88	88	Good	Repeated relief regularly obtained
				9–19–40				1 hour	142	110	96	88	86	Good	
				10–23–40				3 hours	132	112	104	90	90	Good	
				11– 9–40				½ hour	120	86	86	84	82	Good	
6	B. D.	M	30	10– 1–41	Rh. heart disease M.I. M.S.		Fear Palpitation	3 hours	120	98	90	82	82	Good	

TABLE III (*Continued*)

TABLE III (*Continued*)

Case	Name	Sex	Age	Date	Associated Conditions	BMR	Symptoms	Attack Duration Before Inj. Prostigmin Methylsulfate	Rate of Heart					Reaction	Comment
									Initial	Min. After Inj. of 2 c.c. Prostigmin Methylsulfate					
										5	10	15	20		
7	S. W.	F.	23	2–22–41	Rh. heart disease M.I.	+2	Palpitation	40 minutes	100	90	82	74	70	Good	
				3– 8–41				2 hours	98	84	68	68	68	Good	
8	J. D.	F	37	3–24–41	Hypertension Uterine fibroids Left ventricular failure	−4	Palpitation Headache	15 hours	108	98	94	94	94	Poor	Relief very slight
9	M. D.	F	29	12–23–41	Gall bladder disease	+6	Palpitation	5 hours	132	128	126	108	100	Good	Twitching of eyelids
10	F. D.	M	31	9– 2–40	Recent acute tonsillitis		Palpitation Fear	1 hour	116	96	86	84	84	Good	
11	L. S.	M	29	6–26–41	Recent grippe Pleuritis		Palpitation	45 minutes	115	100	88		83	Good	
12	S. C.	M	37	8–20–41	Neurasthenia	+14 +21 +7	Palpitation Fear	2 hours	146	116	104	92	92	Good	Oral prophylaxis with good results
				8–22–41				1½ hours	114	100	90	84	81	Good	
13	M. M.	F	34	3–12–41	Neurosis	+15	Palpitation Dyspnea	3½ hours	110	88	80	82	78	Good	Sublingual twitching and abdominal cramps
14	C. B.	F	41	3–19–41	Neurosis		Palpitation	2½ hours	138	104	88	88	82	Good	Some muscular twitching
15	Y. A.	F	22	8– 9–41	Neurosis	−3	Palpitation Fear	2 hours	154	108	100	76	76	Good	Oral prophylaxis with good results
16	C. H.	F	23	12–17–40	Endocrine obesity	−23	Palpitation	3 hours	122	112	110	102	100	Poor	No attacks of tachycardia after reduction in weight
17	M. W.	M	38	3–30–42	Normal Heavy smoker		Vertigo Palpitation Nausea Vomiting	½ hour	125	115	54	54		Good	Dramatic relief
18	H. S.	M	14	8–20–41	Potential cardiac disease		Palpitation	2 hours	104	108	106	100	92	Poor	Patient very apprehensive

Two c.c. prostigmin methylsulfate, 1:2,000, was injected intramuscularly. Figure 1 shows the three standard leads (*a, b, c*) prior to the injection of prostigmin. The ventricular rate is 104 per minute. Five minutes later (figure 1*d*) the rate had dropped to 97. In 10 minutes (figure 1*e*) the rate was 88, and in 15 minutes the rate was 83 (figure 1*f*). Twenty minutes after the injection a rate of 77 (figure 1*g*) was recorded. At this time the patient seemed relieved. She rose from bed, felt quite assured and well again. No recurrences have been noted to date. It is interesting to note that the PR interval remained constant.

Case 12. S. C., male, aged 37 years, was seen in the Greenpoint Hospital Outpatient Department complaining of repeated attacks of palpitation, associated with nervousness and fear. Basal metabolic determinations were plus 14 and 21, and several days later a plus 7 was reported. A diagnosis of "neurosis" was made. On August 20, 1941, he appeared at the Clinic with a pulse rate of 146 per minute. After a 15 minute rest, 2 c.c. of sterile saline solution were injected with no ensuing effect. Therefore, after a lapse of another 15 minutes, 2 c.c. of prostigmin methylsulfate, 1:2,000, were injected. In five minutes the pulse rate had dropped to 116, in 10 minutes it was 104, in 15 minutes after the injection it was 92, and in 20 minutes it was the same. Two days later he was seen with a pulse rate of 114, which he claimed had been present for one and one-half hours. At this time electrocardiograms were taken. Prior to the injection of prostigmin the rate was 114. In five minutes, the rate was 100, in 10 minutes 90 and after a lapse of 20 minutes only 81. The patient was then given prostigmin bromide tablets (15 mg. each), one to be taken four times daily. No attacks of tachycardia occurred within the next week. For control purposes, capsules of lactose were given for the next seven days. Again the patient complained of many severe attacks of palpitation. Prostigmin bromide was then given again, and only short infrequent attacks were noted. The patient became mentally less fearful of his "heart trouble" and, when last heard from in December 1941, had had very few attacks causing discomfort.

Case 11. L. S., male, aged 29 years. This patient had recovered one week prior to being seen from an attack of "grippe" with pleuritis. There was no demonstrable organic heart disease. On June 6, 1941, he was seen having an attack of sinus tachycardia, with many ventricular extrasystoles. Bigeminy was present at times. The average rate was 115 per minute. Rest and an injection of 2 c.c. of sterile saline solution had no effect. Five minutes after the injection of 2 c.c. of prostigmin methylsulfate, 1:2,000, the rate was 100. After 10 minutes the rate was 88 and in 20 minutes only 83. The ventricular extrasystoles also became less frequent at the same time.

Case 17. M. W., male, aged 38 years, with no organic heart disease. He was a very heavy smoker. On March 30, 1942, he noted a rather sudden onset of palpitation, dizziness, nausea and vomiting. In spite of rest and sterile saline placebo injection, the heart rate remained at 125 per minute (figure 2*a, b, c*). Five minutes after the injection of 2 c.c. of prostigmin methylsulfate, 1:2,000, the rate dropped to 115 (figure 2*d*), and after 10 minutes there was a dramatic drop to 54. A sinus arrhythmia was demonstrable at this time. The average rate of 54 remained the same 15 minutes after the prostigmin injection (figure 2*f*). The patient felt fine and all symptoms had disappeared. No recurrences have been noted to date.

Case 3. R. W., female, aged 53 years, had had a coronary occlusion with myocardial infarction in August 1940. Hypertension had been present for many years

FIG. 1. (Case 1) K. R. (*a, b, c*) Standard leads prior to the administration of prostigmin methylsulfate (1 mg.). Marked left axis deviation is present. The rate is 104. (*d*) Five minutes after the injection, rate is 97. (*e*) Ten minutes after the injection the rate is 88 per minute. (*f*) Fifteen minutes later the rate is 83. (*g*) Twenty minutes after the injection the heart rate is reduced to 77.

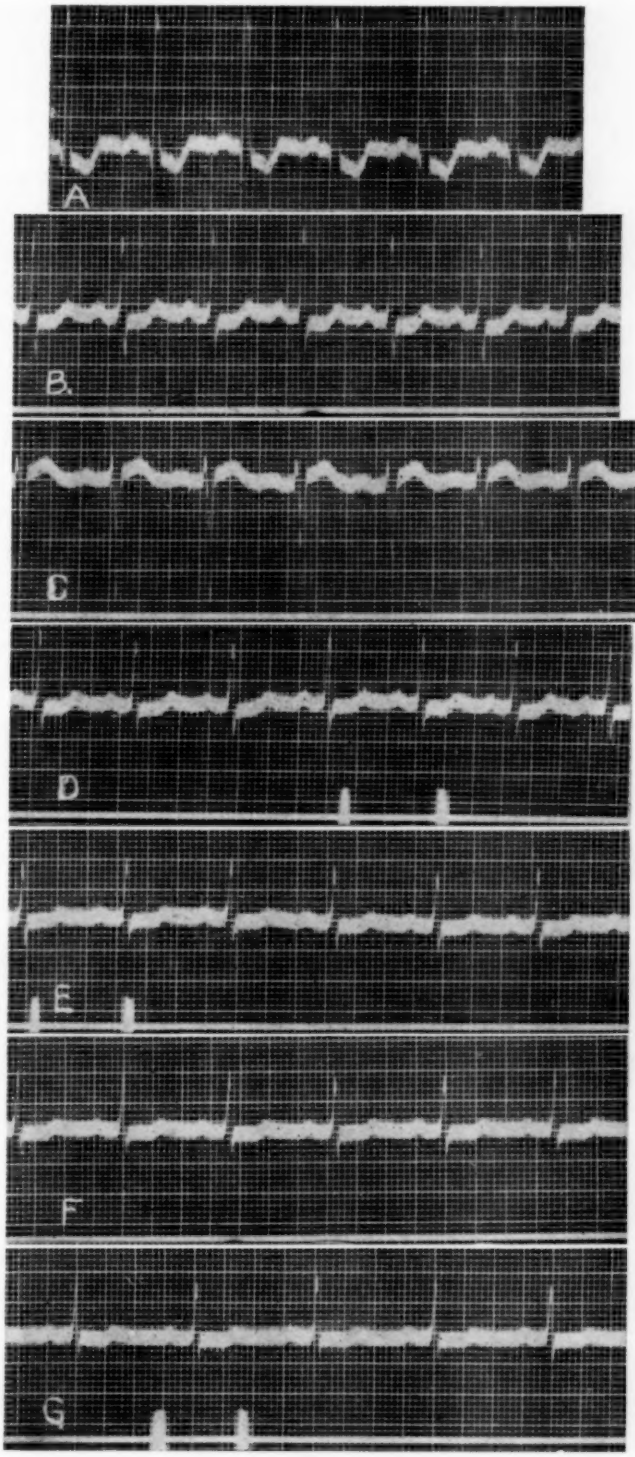

FIG. 1.

and attacks of angina pectoris were fairly frequent since the occlusion had occurred. There were concomitant menopausal symptoms. Attacks of tachycardia were fairly frequent and responded well to injections of prostigmin methylsulfate. Oral prophylaxis with prostigmin bromide tablets four times daily were effective in preventing

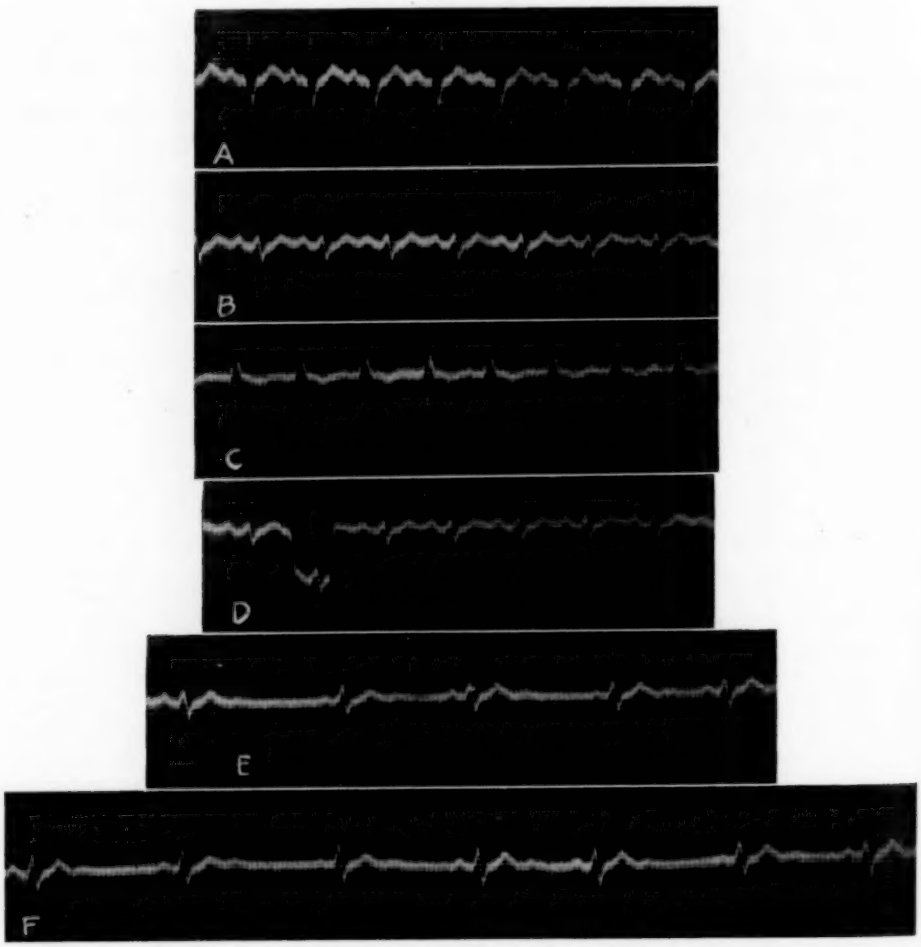

FIG. 2. (Case 17) M. W. (*a, b, c*) Standard leads showing a tachycardia of 125 before the injection of prostigmin methylsulfate 2 c.c. (*d*) Rate is reduced to 115, five minutes after the injection. (*e*) Abrupt fall in rate to 54 is evident in ten minutes. (*f*) Rate remains at 54 in fifteen minutes.

these attacks, which always were associated with precordial pain, vertigo, and severe anxiety. Soon after oral prophylaxis had been stopped, the patient developed an attack of sinus tachycardia associated with severe nausea, vomiting, blurring of vision,

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FIG. 3. (Case 3) R. W. (*a, b, c, d*) Standard and precordial leads prior to injection of prostigmin methylsulfate, 1 milligram. The rate is 134 per minute. (*e*) Five minutes after injection the rate is 102. (*f*) Rate is 92 in ten minutes. (*g*) In fifteen minutes the rate is 86. (*h*) Rate is 84 in twenty minutes.

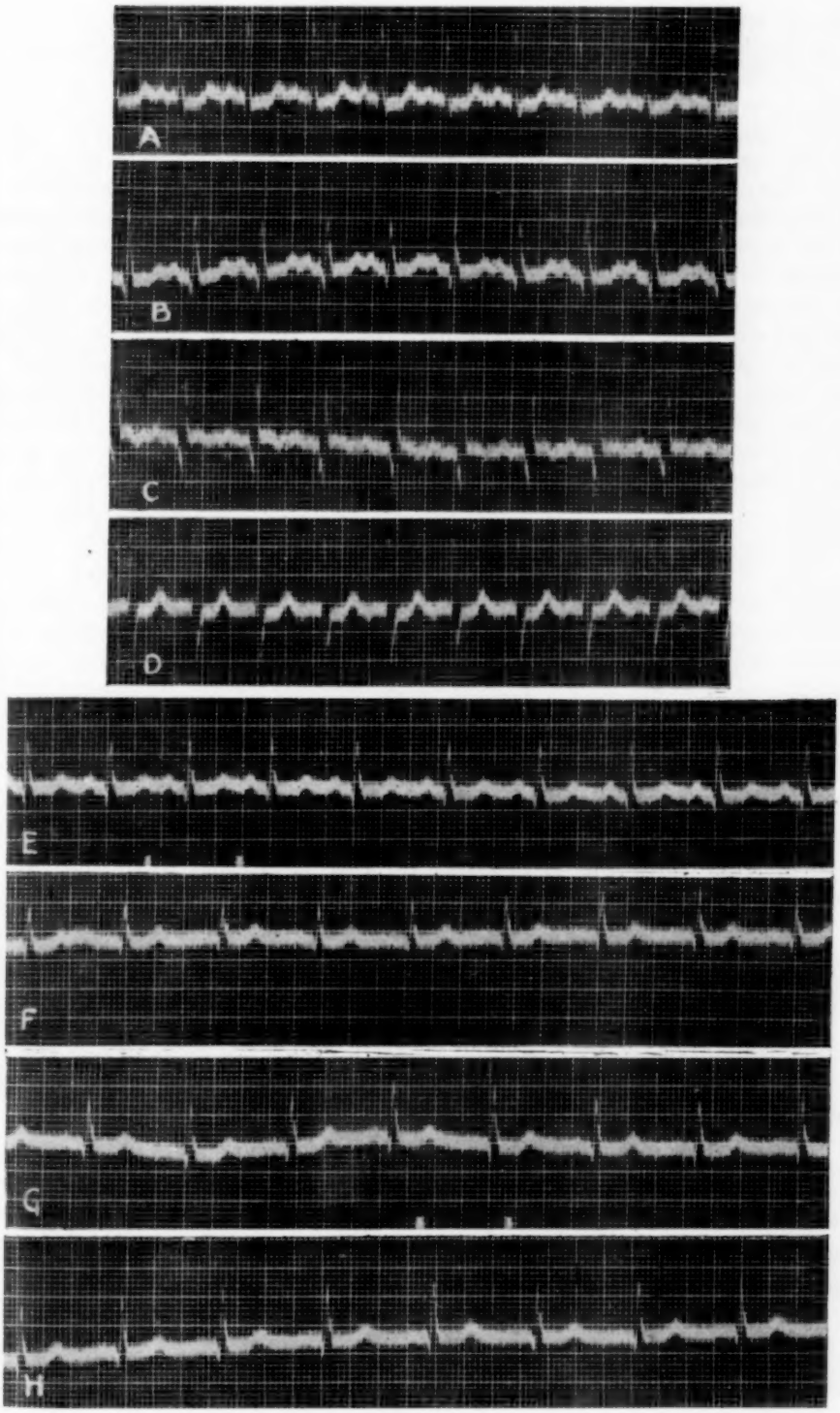

FIG. 3.

dizziness, and precordial pain. Two and one-half hours after the onset of the attack, the heart rate was 134 per minute (figure 3*a, b, c, d*). Five minutes after the intramuscular injection of 2 c.c. of prostigmin methylsulfate, 1:2,000, the heart rate dropped to 102 (figure 3*e*), in 10 minutes it was 92 (figure 3*f*), in 15 minutes 86 (figure 3*g*) and in 20 minutes it was reduced to 84 (figure 3*h*). As the heart rate was reduced, the anginal pain subsided as did the vertigo and vomiting. It is known that in tachycardia, the acceleration of heart rate takes place at the expense of diastole. The coronary vessels fill during diastole. Therefore, in tachycardia, the filling time of the coronary vessels is decreased, and cardiac nutrition will especially suffer during this time in the presence of coronary artery disease with myocardial infarction. The pain in this instance was probably due to the tachycardia, and relief was concomitant with relief of the tachycardia. The TP interval increased from .02 second to .20 second (figure 3*b, h*). Thus the diastole phase was prolonged 10 times, so the coronary vessels had a filling time 10 times longer at a heart rate of 86 than at a rate of 134. The systolic phase was unaltered in length. The blurring of vision continued for about 12 hours, and probably was due to arterial spasm. At the present time, tablets of prostigmin bromide are being taken prophylactically, with good effect.

Comment

Prostigmin chemically is the dimethylcarbamic ester of m-oxyphenyltrimethyl-ammonium methylsulfate or bromide. Pharmacologically it is a cholinergic drug and, according to the present concept, exerts its action by inhibiting the cholinesterase formed at the myoneural junction, thus allowing the acetylcholine there formed to remain intact long enough for the nerve impulse to be transmitted. Accordingly, it would be expected that, since prostigmin is a parasympatheticomimetic drug, its effect on the cardiac rate regulating mechanism is mediated through the myoneural junctions of the vagal system. That this is probably the case is attested to by the almost uniformly successful results obtained.

Summary

1. Sinus tachycardia may be physiological in origin, may accompany organic conditions, or may have no apparent etiological basis.

2. In cases of the latter type of attack, the symptoms, distressing to the patient, may readily be aborted by the intramuscular administration of 2 c.c. (1 mg.) prostigmin methylsulfate, a cholinergic drug.

3. The prophylactic oral use of prostigmin bromide tablets has proved effective in attacks of sinus tachycardia in such cases in which these attacks occur at frequent intervals. Four tablets of 15 mg. each, taken at equally spaced intervals, is the required daily dose.

4. The rationale of therapy is briefly reviewed.

Ampoules and tablets used in these studies were courteously supplied by the Hoffmann-La Roche Co., Nutley, New Jersey.

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A SUMMARY OF EIGHTY LIVING CASES OF PERNICIOUS ANEMIA *

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THIS article contains information obtained by a study of 80 cases of pernicious anemia undergoing treatment in the Pernicious Anemia clinic of the Milwaukee County Hospital Dispensary which was established by Dr. F. Murphy. The data were obtained by oral interviews with the patients and supplemented by the study of case records.

AGE INCIDENCE

Age Distribution			Age of Suspected Onset		Age at Diagnosis	
Years	Patients	%	Patients	%	Patients	%
25–29	0	0	1	1.25%	0	0
30–39	1	1.25%	4	5.00%	4	5.00%
40–49	4	5.00%	14	17.50%	12	15.00%
50–59	18	22.50%	23	28.75%	20	25.00%
60–69	33	41.25%	32	40.00%	33	41.25%
70–79	22	27.50%	6	7.50%	11	13.75%
80–85	2	2.50%	0	0	0	0

The ages varied from 37 to 83 years. The largest number of patients was from 60 to 69 years of age. Fifteen per cent of cases were first discovered between 40 and 49 years of age. The earliest age of suspected onset was 29.

In a group of 223 cases reported by Jahsman,[6] the ages of the patients were from 17 to 81 years with most of the cases occurring over 40. Templeton [7] has reported a case of pernicious anemia in a girl aged 14.

TIME FROM ONSET TO DIAGNOSIS

	Patients	%
Same year	29	36.25%
One year	21	26.25%
Two years	14	17.50%
Three years	10	12.50%
Four years	2	2.50%
Five years	0	0
Six years	2	2.50%
Seven years or more	2	2.50%

* Received for publication January 5, 1943.
From the Milwaukee County Hospital and the department of medicine of the Marquette University Medical School.
Presented by title before the Central Society for Clinical Research, Chicago, November, 1942.

Common Presenting Symptoms

The most common presenting symptoms were progressive weakness and fatigue. In addition to these, dyspnea, dizziness, ankle edema, palpitation, paresthesias, sore mouth and gastrointestinal complaints were frequent. More unusual presenting complaints were hemorrhagic tendencies, precordial pain, difficulty in walking, nervousness, insomnia, bitter taste in the mouth, and fainting. Tinnitus was a symptom of six of the patients when the anemia was severe and disappeared after the red blood cell count became normal. In most cases there was a weight loss of from 10 to 20 pounds. The diagnosis was not made until two years after onset of suspicious symptoms in 20 per cent of the cases.

Fatigue and general weakness were the early symptoms in 85.1 per cent of 580 cases reported by Isaacs.[1] In 37.4 per cent of his series the diagnosis was not made until two years after the suspected onset. Minot,[2] in reviewing the records of 100 cases of pernicious anemia, reports that the time required for diagnosis after definite symptoms were present was: 0.79 year if the initial symptoms were generalized weakness, 0.95 year if cardiac, 1.28 years if neurological and 2.19 years if gastrointestinal. He gives the symptoms of onset as being weakness in 33 per cent, gastrointestinal in 31 per cent, nervous lesions in 26 per cent, and cardiac in 10 per cent.

Precordial pain was not uncommon in our group of patients, but 33.75 per cent also had associated heart disease. According to Stalker,[3] most cases of this syndrome show coronary sclerosis and there is a higher incidence of cardiac pain in patients with cardiovascular disease and pernicious anemia together than in those with cardiovascular disease alone.

There were 51.25 per cent of our patients under treatment for pernicious anemia for more than five years. Fourteen patients, or 17.5 per cent, had been receiving treatment for more than 10 years, the maximum being 13 years.

Nationality. Predominant national groups were determined. It was noted that 67.5 per cent were derived from three national groups, i.e., German, Polish and Irish. The incidence was: German 42.5 per cent, Polish 13.75 per cent, and Irish 11.25 per cent. The countries of northern Europe and the British Isles were the origin of the forefathers of over 87 per cent. Statistics such as these, however, are colored by the location in which they are taken. Milwaukee is primarily a German and Polish settlement. One Italian and one negress are included in this series.

Friedlander [4] refers to a study of 150 cases of pernicious anemia in 1921 by Levine and Ladd and presents confirmatory evidence from a study of 500 cases to show that pernicious anemia is most often found in members of the white race living in temperate zones.

McCracken [5] reported three cases of pernicious anemia in negroes and reviewed literature which indicated that about 3 per cent of the cases of per-

nicious anemia occur in the negro. He thought it doubtful whether the disease occurred in the full blooded negro.

Number of Physicians Seen before Diagnosis Made. Forty-three of the 80 patients, or 53.75 per cent, did not receive an accurate diagnosis by the first physician they consulted, although suggestive symptoms were present. In 11.25 per cent the first three physicians consulted were unable to make a correct diagnosis; 86.25 per cent of the cases were not adequately studied until hospitalized. Seventy-six patients, or 95 per cent, were hospitalized for diagnostic work or early treatment.

Transfusions. Seventeen patients, or 21.25 per cent, had transfusions soon after hospital admission. The results do not fully agree with the statement of Jahsman [6] that with the use of parenteral liver extract transfusion is rarely needed. Strauss [8] states that "transfusion of blood is indicated if 'air hunger' or signs of circulatory failure are present at rest in the severely anemic patient."

AGE OF GRAYING OF HAIR

Years	Patients	%
15–19	5	6.33%
20–29	6	7.60%
30–39	11	13.92%
40–49	20	25.32%
50–59	20	25.32%
60–69	10	12.66%
70–79	1	1.26%
Not Gray	6	7.59%

About 14 per cent of the group were gray before 30 and almost 28 per cent before forty. Only six patients, 7.59 per cent, were not gray, but this is not remarkable considering the age incidence. Five of those not gray were between 60 and 67 years of age, and another was 37 (based on 79 cases).

One of the younger patients, aged 41, diagnosed as having pernicious anemia when 39, reported that her hair was white during the acute stage of her illness and with treatment it turned to dark brown. We have seen photographs and hair samples which confirm this.

Isaacs [1] states that the change towards gray hair usually begins before 30 and that frequently other members of the family note early graying of their hair.

Color of Eyes. About two-thirds, 67.5 per cent, of the patients had gray, blue or green eyes and the remainder, 32.5 per cent, had brown eyes. Isaacs [1] states there is a higher percentage of light hair and light colored eyes in pernicious anemia patients than in a control group. Friedlander [4] also finds light colored eyes in a large proportion of patients.

Sore Tongue. Sore tongue as an initial symptom was found in 56.25 per cent of cases, but 38.75 per cent of the group had never had a tongue complaint. Four cases (5 per cent) had an occasional attack of glossitis after treatment was begun, although it had not been an original complaint. Re-

	Sore Tongue		Paresthesias		Disturbances of Gait	
	Patients	%	Patients	%	Patients	%
At onset and now	13	16.25%	35	43.75%	14	17.50%
At onset but not now	32	40.00%	22	27.50%	19	23.75%
Not at onset but now	4	5.00%	12	15.00%	8	10.00%
Never	31	38.75%	11	13.75%	39	48.75%
	Paresthesias of Hands		Disturbances of Micturition		G.I. Complaints	
	Patients	%	Patients	%	Patients	%
At onset and now	17	21.25%	17	21.25%	21	26.25%
At onset but not now	27	33.75%	9	11.25%	45	56.25%
Not at onset but now	12	15.00%	7	8.75%	0	0
Never	24	30.00%	47	58.75%	14	17.50%

currences of sore tongue occurred at intervals of as long as seven and nine years. All of these complaints were of an intermittent nature usually lasting only a few days or weeks.

Isaacs [1] gives the incidence of glossitis as 73.3 per cent and finds it to be more common in women. He states that the reappearance of glossitis is an indication for resuming more intensive dosage, and with this we agree. In our experience oral vitamin B complex was of no great help but some patients attributed considerable relief to the use of dilute hydrochloric acid.

Paresthesias. Only 13.75 per cent of the group were never bothered by paresthesias, whereas 71.25 per cent had paresthesias associated at the onset. In 27.5 per cent of the patients who had paresthesias at the onset, the paresthesias disappeared under treatment; whereas 43.75 per cent of the entire group which had them at the onset continued to notice them occasionally or constantly. The majority reported that the intensity decreased under treatment.

Numbness, tingling and burning were the cardinal complaints. The hands and feet, including fingers and toes, were the common sites. A few complaints referred to the chest, arms and entire lower extremities were encountered.

Goldhamer, Bethell, Isaacs and Sturgis [9] noted nervous system involvement in 89.2 per cent of a group of 408 patients, and found numbness in 88 per cent and tingling in 82 per cent. Weltman and Heck [11] emphasize the necessity of early treatment to prevent irreparable nervous system damage. According to Craig [10] nervous system symptoms occurred before the onset of anemia in 1.4 per cent of cases seen at the Mayo Clinic.

Disturbances of Gait. Difficulty in walking was a complaint of 41.25 per cent of patients at the onset of pernicious anemia, but only 17.5 per cent complained of this both at the onset and after treatment. Almost all of these reported some improvement. Some difficulty in walking which was

not present at the onset developed in 10 per cent of patients even with what was thought to be adequate therapy.

The prominent complaints encountered were staggering, unsteady gait, cramps and weakness in both lower extremities, very weak legs, difficulty in walking at night or with the eyes shut, shaky on walking, stiff and awkward legs, difficulty in maintaining balance, lack of control of the lower extremities, stumbling, hesitating gait, and inability to move the legs. Associated with most of the complaints were spasticity, ataxia, and weakness of the legs.

Isaacs [1] reported difficulty in walking in 43.6 per cent of his patients. Goldhamer et al.[9] found a loss of position sense in 12 per cent and ataxia in locomotion in 54 per cent. Murphy and Howard [12] state that sufficient therapy to maintain the blood count at 5,000,000 or more red blood cells per cubic millimeter continuously will prevent the development or progression of neurological difficulties and will cause improvement in all cases. Rosenthal and Abel [13] emphasize the value of adequate liver extract therapy in arresting, improving and preventing nervous system symptoms.

Disturbances of the Hands. In 55 per cent of the cases symptoms referred to the hands were present. Numbness, tingling and burning were the major complaints, whereas poor coördination and poor grip were more unusual difficulties. Twelve patients, or 15 per cent, subsequently developed such complaints, and 30 per cent never had them. Almost all cases showed considerable improvement under treatment.

Disturbances of Micturition. Some bladder difficulty occurred at the onset of pernicious anemia in 32.5 per cent of cases. In 21.25 per cent there were bladder complaints both at the onset and persisting after treatment, while 8.75 per cent of the group developed frequency which was not noticed at the onset.

Frequency of urination was the most common complaint. Several cases of urinary incontinence and a few cases of minor difficulty in urination were encountered. One patient suffered from acute retention and another with cystitis during early hospital investigation. Two cases tabulated here had moderate prostatic hypertrophy.

Symptoms referable to the bladder were found in 35 per cent of cases as reported by Isaacs.[1] Goldhamer et al.[9] found bladder disturbances in 22 per cent of cases. Rosenthal and Abel [13] state that if incontinence is present it is usually the first neurological symptom to disappear under treatment.

GASTROINTESTINAL COMPLAINTS

	Complaints at Onset		After Treatment Instituted	
	Patients	%	Patients	%
Indigestion	38	47.50%	6	7.50%
Anorexia	47	58.75%	4	5.00%
Constipation	29	36.25%	11	13.75%
Diarrhea	15	18.75%	3	3.75%
Abdominal pain	12	15.00%	2	2.50%

Anorexia at the onset was a complaint of 58.75 per cent of patients; whereas a complaint of "indigestion" was present in 47.5 per cent. Only 17.5 per cent of cases were without gastrointestinal symptoms at the onset. Nausea with vomiting or nausea alone was the most common complaint of those with indigestion. There were many complaints of flatulence and two cases of hematemesis of unknown cause. Intermittent diarrhea or alternating diarrhea and constipation were suggestive symptoms in a few cases. Fullness in the epigastrium, occasional abdominal pain, epigastric tenderness and pain were not uncommon.

Minot [2] reported a long history of indigestion in 35 of 100 cases and expressed the opinion that almost all cases of pernicious anemia have gastrointestinal complaints when the disease becomes evident. Isaacs [1] gives the following incidence of symptoms: those referable to the stomach in 62.6 per cent, constipation in 54.3 per cent, and diarrhea in 26.5 per cent.

Liver Therapy. The standard employed as an indication of adequate therapy was the maintenance of the red blood cell count above 4,500,000 per cubic millimeter, preferably above 5,000,000, and the hemoglobin above 80 per cent (approximately 12.5 grams), as well as maintenance of weight and freedom from symptoms. Three c.c. amounts of crude liver extract (15 USP units) intramuscularly every four weeks was satisfactory in 66 per cent of patients, and 11.5 per cent required 3 c.c. every three weeks (3 c.c. concentrated solution liver extract parenteral-Lederle). Although this routine was adequate in the majority of patients, each case had to be studied individually and varied from time to time. When symptoms and signs persisted or increased it was found necessary to supply the patient with liver extract weekly. This was done routinely in those who had neurological disturbances as well as other minor signs. All responded to this increased dosage. Patients were weighed at each visit to the clinic since maintenance of weight seems to be important in gauging the efficiency of treatment.

Our results coincide well with the findings of Murphy and Howard [12] who state that 1 c.c. of liver extract containing 15 USP units at intervals of 3.6 weeks or 3 c.c. of liver extract (15 USP units) at intervals of 3.7 weeks when given intramuscularly gave satisfactory results in maintaining a normal blood count and in preventing neural damage.

Five patients used oral preparations because of reactions to liver injections. These patients received Hepovex one drachm three times a day.

Reactions to Parenteral Injections of Liver Extract. Allergic reactions are apparently far more common than would be expected from the scarcity of the reports in the literature. There were 27.5 per cent of our group of patients who had reactions at some time or other. Most reactions were allergic in nature. Some reactions are persistent; others occur only occasionally. Some reactions yield to a change in preparation. Sensitivity tends to disappear. After a few months on oral preparations a subsequent injection is less likely to be followed by an allergic response, although reactions may again appear after a number of injections have been given.

Urticaria, either alone or accompanied by other symptoms, was the chief reaction encountered. It occurred in 10 of the 22 cases of sensitivity to parenteral injections. The usual reaction was characterized by a variable number of the following symptoms which were frequently accompanied by urticaria: weakness, faintness, dizziness, chilly sensations, shivering, pallor, nausea with or without vomiting, profuse perspiration, flushed skin, collapse, abdominal distress, sore swollen buttock or leg, severe back pain, headache, a weak thready pulse and fever. Itching of the hands was a prominent feature of the urticaria in several cases. Skin tests were considered positive in almost all cases in which they were done. Reactions usually occurred about one hour after injections but sometimes were delayed for three hours and even as long as 12 hours.

Jones [14] states that allergic reactions following parenteral liver are very uncommon but do occur. Jones refers to Criep as concluding that this is an example of acquired allergy. He notes that sensitivity tends to disappear after a time. Taylor and Hilger [15] present a method employing histaminase by mouth which they claim tends to prevent allergic reactions. Isaacs [1] states that a few patients are allergic to liver and in these patients it may be necessary to try all the preparations available.

Patients who have used oral preparations at some time or other were questioned as to reactions from this source. Five complaints were elicited: two of constipation, two of vomiting and one of a feeling of fullness in the epigastrium.

Neglect of Treatment. Nineteen patients for various reasons discontinued therapy one or more times, making a total of 21 instances. This happened in spite of the fact that the necessity for continuous treatment had been stressed. Liver therapy was discontinued for periods ranging from three months to as long as five years. A very variable length of time was required for severe relapses to occur after treatment was stopped. Relapses did not occur after the same interval in the same patient discontinuing therapy on different occasions. Eight of the patients required hospitalization after neglecting treatment for periods of 10 months to five years. One patient received hospitalization on two occasions. Extreme weakness and fatigue were the most common results of discontinuing treatment. Other complaints were anorexia, vomiting, diarrhea, sore tongue, dizziness, insomnia, paresthesias, palpitation, precordial pain, dyspnea and pallor.

Associated Conditions. Associated heart disease primarily of the degenerative types occurred in 33.75 per cent of the 80 cases, but it should be recalled that 30 per cent of the patients were over 70 years of age. There were 15 cases of benign essential hypertension, an incidence of 18.75 per cent. Isaacs [1] has emphasized the prevalence of hypotension in pernicious anemia, but this was not evident in our ambulatory group.

Four patients (5 per cent) had a cholecystectomy and there are two cases (2.5 per cent) of chronic cholecystitis not operated upon. Minot [2] states that gall-bladder disease is often found in pernicious anemia.

The combination of diabetes mellitus, toxic adenoma of the thyroid and pernicious anemia was found in one patient and provides an interesting association. Two patients have diabetes mellitus (incidence 2.5 per cent). Minot [2] believes the coincidence of diabetes mellitus and pernicious anemia to be more than accidental.

There were two cases of toxic adenoma of the thyroid and one of mild hyperthyroidism.

Family History. The patients were questioned in attempts to obtain a family history of pernicious anemia. Ten of them, 12.5 per cent, were of the opinion that some other member of their family had been afflicted with the condition, but only two (2.5 per cent) claimed that there had been a definite diagnosis of pernicious anemia. Records are not available to check this information which makes it only of a suggestive or presumptive value.

Stames [16] reported a familial incidence of 7.9 per cent in a series of 645 cases which includes an authenticated case in twin sisters. He admits that the true incidence may be less than 7.9 per cent, since in many cases he had to rely on the patient's report of the disease in his family as the only method of obtaining a positive family history. Askey [17] claims that the finding of achlorhydria in a relative of a pernicious anemia patient justifies the suspicion of potential pernicious anemia.

Summary

A study has been made of 80 living cases of pernicious anemia who had been under treatment, 17.5 per cent for more than 10 years.

The highest incidence occurred in the seventh decade, although the age varied from 37 to 83 years.

A possible family history was obtained in 12.5 per cent.

A majority (67.5 per cent) were derived from three national groups: German, Polish and Irish. One was a negress. Of the 80 cases, 28 were male and 52 were female patients.

In about 14 per cent of the cases the hair became gray before 30 years of age. In one case gray hair became dark under treatment. In 67.5 per cent the eyes were blue, gray or green, and in the rest brown.

A correct diagnosis was made during the first year of illness in only 36.25 per cent. In 53.75 per cent the diagnosis was not made by the first physician consulted, and in 86 per cent it was not adequately established until hospitalization.

The most common initial symptoms were weakness and fatigue. Sore tongue occurred at onset in 56 per cent; paresthesias in 71 per cent; disturbances of gait in 41 per cent; bladder disturbances in 32.5 per cent and gastrointestinal complaints in 82.5 per cent. Heart disease of a degenerative type occurred in 33.7 per cent.

Treatment was designed to keep the red blood cell count between 4,500,000 and 5,000,000 and the hemoglobin above 80 per cent. Maintenance of weight also seemed to be an important guide as to efficiency of treatment.

This was accomplished satisfactorily in 66 per cent of the cases by one injection of 3 c.c. of crude liver extract (15 units) every four weeks, and in 11.5 per cent every three weeks. In individual cases more frequent injections were required.

Reactions to injections of liver extract, usually allergic in nature, occurred in 27.5 per cent of the cases and in five forced a change to oral therapy.

Nineteen patients discontinued treatment for periods of three months to five years, but all subsequently resumed it. The time elapsing before severe relapse occurred varied greatly in different cases.

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CASE REPORTS

ADRENAL MEDULLARY TUMOR (PHEOCHROMOCYTOMA) AND DIABETES MELLITUS; DISAPPEARANCE OF DIABETES AFTER REMOVAL OF THE TUMOR *

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THE clinical picture associated with tumors composed of tissue morphologically and functionally similar to that of the adrenal medulla has been fairly well defined.[1, 2, 3] The cardinal feature of this entity is hypertension, usually paroxysmal. As one would expect, there is frequently evidence that carbohydrate metabolism is abnormal. We have recently observed a patient with an adrenal pheochromocytoma in whom the disturbance of carbohydrate metabolism was so severe that he was followed for several years in our Diabetic Clinic as a characteristic case of diabetes mellitus. Even after the diagnosis of pheochromocytoma had been established, it was thought that diabetes of the usual type was also present. Only after operation did the causal relationship between the tumor and the hyperglycemia become apparent. Since a comparable disturbance of carbohydrate metabolism has never previously been shown to be due to a pheochromocytoma, this case is reported.

CASE REPORT

H. R., a 65 year old negro, was admitted to the Osler Medical Service of the Johns Hopkins Hospital May 19, 1943 for diabetic regulation following an acute respiratory infection.

His health had been good until September, 1940. At that time he noticed polyuria, frequent throbbing headaches, occasional brief sensations of "pins and needles" in his legs and frequent severe sweats. With the exception of the polyuria, which diminished under diabetic treatment, these symptoms persisted until the operation described later. The sweats occurred at first several times a week but gradually increased to a frequency of one or two daily. These were often severe enough to drench his clothes but lasted only about 30 minutes. Throughout the years of his illness he had transitory hot flushes, at first several times a week but later almost every day. He had throbbing, occipital headaches several times a week. They were not very severe and were easily relieved by aspirin. None of these symptoms necessarily occurred in association with any other one. In the three months following the onset there was weight loss of 40 pounds. Ten pounds were regained under subsequent diabetic treatment.

The patient entered another hospital three months after the onset of symptoms because of an acute corneal ulcer. Glycosuria and fasting hyperglycemia were found, and insulin therapy was begun. On discharge he was referred to the Johns Hopkins Hospital Diabetic Clinic. There, because of his refusal to accept less carbohydrate,

* Received for publication December 28, 1943.
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he was given a liberal diet of C 300, F 120 and P 100. During the next year he received from 15 to 25 units of protamine zinc insulin per day and excreted at times as much as 30 grams of glucose.

In January, 1942 he entered the hospital with mild lobar pneumonia of five days' duration. On admission his blood glucose was 290 mg. per 100 c.c., CO_2 combining power 56 volumes per 100 c.c., urinary sugar 4 plus and urinary acetone 2 plus. He responded well to routine sulfonamide therapy, but during the first week in the hospital on a diet of C 240, F 130 and P 70 with over 100 units of regular insulin per day, there was a considerable glycosuria. Thereafter the previous insulin dosage was resumed. His blood pressure was extremely labile, fluctuating between 115 mm. Hg systolic and 70 mm. diastolic and 200 mm. Hg systolic and 120 mm. diastolic.

After discharge the patient was again followed in the Diabetic Clinic. The quantity of insulin given daily was gradually increased to 20 units of protamine zinc and 15 units of regular insulin. He was admitted to the hospital for the second time on May 19, 1943 following an acute respiratory infection.

On admission he was afebrile and did not appear ill. Immature cataracts were present, and there were slight sclerotic changes in the retinal arteries. The lungs were clear, and the heart was not remarkable except for the presence of a rough apical systolic murmur. The peripheral arteries were moderately thickened, and the right dorsalis pedis artery could not be felt.

Initial blood pressure determinations by those in charge of the patient at this time varied from 125 mm. Hg systolic and 80 mm. diastolic to 240 mm. Hg systolic and 120 mm. diastolic. This wide variation suggested to these observers, Dr. Robert Austrian and Mr. William Dixon, the possibility of the presence of a pheochromocytoma. Subsequent studies of the blood pressure showed that it was extremely labile, fluctuating between 90 mm. Hg systolic and 65 mm. diastolic and 250 mm. Hg systolic and 130 mm. diastolic. It rose and fell so frequently that no decision could be made as to whether variation in position or pressure over the flanks or abdomen affected it. The pulse rate varied between 80 and 120.

The first week in the hospital the patient had daily drenching sweats which usually lasted about 20 minutes. During these sweats he was a little weak but otherwise felt well; the blood sugar was elevated, and the blood pressure either high or normal. The sweating attacks gradually became less frequent.

On admission his fasting blood sugar was 318 mg. per 100 c.c. The next day it was 336 mg. per 100 c.c., and the CO_2 combining power was 63 volumes per 100 c.c. He was given a diet of C 250, F 120 and P 80. On the second hospital day he received 25 units of protamine zinc and 45 units of regular insulin but excreted 40 grams of glucose and showed throughout the day traces of acetone. There was subsequently no acetonuria. The quantity of insulin administered daily was gradually decreased to 15 units of protamine zinc and 30 units of regular insulin mixed in the syringe prior to injection. On this régime there were 8 to 17 grams of glucose in the urine per day. Fasting blood sugar varied between 107 and 234 mg. per 100 c.c., but the CO_2 combining power was always normal.

There was constant slight proteinuria, and the urinary sediment frequently contained a few erythrocytes, leukocytes and granular casts. The non-protein nitrogen was 36 mg. per 100 c.c. There was 38 per cent excretion of phenolsulfonphthalein in two hours, and the urea clearance was 71 per cent of the normal standard. The basal metabolic rate varied between 25 and 48 per cent above normal. Two cholesterol determinations were 343 and 378 mg. per 100 c.c.

An intravenous pyelogram was unsatisfactory, but the calyces in the upper portion of the right kidney were visualized and appeared to be normal. Four hundred and fifty c.c. of air were injected into Gerota's fascia on the left, and three days later a similar injection was carried out on the right. The needle was inserted at the angle formed by the spinal muscles and the iliac crest, according to the method described

by Cope.[4] A roentgenogram taken 18 hours after the last injection showed a definite oval shadow overlapping and extending above the upper pole of the right kidney.

On June 23 a bilateral simultaneous exposure of the adrenals was performed by the technic of Young.[5] Operation: Dr. Semans and Dr. Young. Anesthesia: Gas-oxygen-ether. The left adrenal was exposed by Dr. Young. It measured 2 cm. in width and 3 to 4 cm. in length. The right adrenal was exposed by Dr. Semans.

The patient was placed on the table in the prone position. Two slightly oblique incisions were made on either side of the midline and the twelfth rib removed. The muscular attachment to the iliac crest was removed on the right side after the tumor was found. This greatly increased the exposure. A mass identical in shape and position with the shadow shown on the perirenal pneumogram was felt on the anterior and medial portion of the upper pole of the right kidney. Care was taken not to squeeze the mass although some manipulation was necessary while freeing it. No pedicle was felt, and very little bleeding occurred after the tumor was enucleated. Inspection revealed that a portion of the adrenal was left in situ. A small drain was left at the site of the tumor in the upper angle of the wound. The muscles were attached once more to the iliac crest and the incision closed.

The blood pressure was 250 mm. Hg systolic and 180 mm. diastolic when the incision was made but fell slowly during the next 45 minutes to 160 mm. Hg systolic and 120 mm. diastolic. While the tumor was being manipulated, it was recorded as 170 mm. systolic and 130 mm. diastolic, but within 10 minutes after removal of the tumor it fell to 80 mm. Hg systolic. There was a satisfactory rise after the administration of intravenous epinephrine, and the patient was returned to the ward.

There he went into profound shock, which again responded dramatically to intravenous epinephrine. During the first 12 postoperative hours the patient received 18 mg. of epinephrine, most of which was added to his intravenous fluids. Epinephrine was not subsequently given, but during the first four postoperative days he received 30 mg. desoxycorticosterone acetate and 190 c.c. of Wilson's adrenal cortical extract. His postoperative course was stormy, with fever as high as 103° F. during the first three days. Thereafter it fell slowly to normal. There was marked abdominal distention for four days. His convalescence was otherwise satisfactory.

During the first five postoperative days he was given about 150 grams of glucose per day. Most of this was by the intravenous route. About 25 units of regular insulin were given each day. Qualitative determinations of the urinary sugar varied between a trace and 2 plus. On the sixth day the patient received a diet of C 150, F 60 and P 60. He was given 10 units of regular insulin and excreted 5 grams of sugar. The next day on the same diet with 15 units of regular insulin he excreted 0.3 gram of sugar. Subsequently there was no glycosuria or fasting hyperglycemia although insulin was discontinued on the tenth postoperative day, and the diet was gradually raised to C 300, F 120 and P 80.

Following operation there were no further sweats or headaches. After recovery from postoperative shock, the blood pressure was maintained between 110 mm. Hg systolic and 60 mm. diastolic and 120 mm. Hg systolic and 80 mm. diastolic. The heart rate varied between 80 and 100. The albuminuria disappeared, and the urinary sediment was normal. There was 67 per cent excretion of phenolsulfonphthalein in 2 hours, and the urea clearance was 72 per cent of the normal standard clearance. The basal metabolic rate was 4 per cent below normal. The patient was followed closely for a period of 5 months after the operation, and during that time there was neither hypertension nor evidence of diabetes.

Pathology and Tumor Assay

The tumor was examined by Dr. Sam S. Blackman, Jr., and his description follows:

"Gross appearance: The specimen is a rounded, encapsulated tumor of the adrenal, weighing 35 grams and measuring 5.5 by 4.5 by 2.4 cm. On section there is a thin rim of yellow adrenal cortical tissue along one side; the tumor is soft, the central portion red. On the periphery there are opaque, white areas. Blocks are fixed in formalin, Zenker-formalin, and in Vandegrift's solution. The block fixed in Zenker-formalin solution turns very dark brown in color. The sections are stained with hematoxylin and eosin.

Microscopically there are numerous very large anastomosing venules and sinusoids in the central part of the tumor. These are few in number or absent in the periphery. The tumor cells are vaguely arranged in fairly large groups and cords of irregular shape. Between each group of cells there are rather delicate connective tissue septa carrying capillaries.

The individual cells of the tumor do not vary much in appearance. On the whole most of them are large and polygonal. Some are sharply outlined; many tend to fuse with each other. The cytoplasm is coarse and granular. In most cells of the formalin and Vandegrift fixed tissue there are basophilic and eosinophilic areas in the cytoplasm. All of the cells and even the connective tissue septa of the Zenker-formalin fixed tissue have a hazy brown color due to the phaeochrome properties of the cells.

The nuclei are in general rounded or oval; most are hyperchromatic, and some show large nucleoli. A good many cells contain two or three nuclei, and there are scattered giant nuclei of enormous size. On the whole, in size, shape and character of nuclei, the tumor cells resemble ganglion cells more than chromaffin cells of the normal adrenal medulla. A few of them even contain a ring of large coarse basophilic granules in the periphery of the cytoplasm, resembling Nissl granules in ganglion cells."

The approximate epinephrine content of the tumor was determined by comparing the pressor effect of a neutralized acid extract of the tumor with that of a known quantity of epinephrine in an anesthetized dog. The details of the method are described in the paper of McCullagh and Engel.[6] One gram of the tumor was found to contain 6 mg. of epinephrine. If the pressor substance was evenly distributed throughout the pheochromocytoma, the entire tumor had the pressor activity of 210 mg. of epinephrine.

The effect of the tumor extract on blood sugar was determined in a fasting dog anesthetized with amytal. For each kilogram of body weight the volume of tumor extract equivalent to 0.02 mg. of epinephrine by pressor test was given intravenously. Before injection the blood sugar was 95 mg. per 100 c.c. At 10 minutes it was 145, at 20 minutes 127 and at 30 minutes 111 mg. per 100 c.c. The following day the same dog was given 0.02 mg. of epinephrine per kilogram of body weight. Before injection the blood sugar was 75 mg. per 100 c.c. At 10 minutes it was 115, at 20 minutes 107 and at 30 minutes 102 mg. per 100 c.c.

Discussion

The abnormal carbohydrate metabolism during the phase of the tumor's presence, and its reversion to normal after the tumor's removal, seem to us the most important features of this case. That the patient suffered from diabetes mellitus in the true sense of that descriptive term seems certain. The presenting complaints were those of polyuria and weight loss. Fasting hyperglycemia and constant glycosuria were present. Infection twice resulted in increased hyperglycemia and caused mild ketonuria. Failure to achieve excellent regulation of carbohydrate metabolism under dietary and insulin therapy seemed adequately explained by the patient's unwillingness to adhere to the recom-

mended diet even while on the ward. The clinical course was thus one which was indistinguishable from numerous other cases of diabetes mellitus.

After removal of the tumor the patient was able to dispose of a diet containing 300 grams of carbohydrate without glycosuria or elevation of the fasting morning blood sugar. Two glucose tolerance tests, in which the glucose was administered intravenously, yielded normal findings. At the suggestion of Dr. Elliott P. Joslin glucose tolerance curves have also been done by the oral method (table 1). In the third test, in which 1.75 gm. glucose per kilo were given,

TABLE I

Time Minutes \ Test	1 7-30-43	2 8-3-43	3 11-3-43	4 11-16-43
0	86	90	84	100
5	260	—	—	—
30	—	244	—	134
60	124	158	166	148
120	85	90	175	125
180	65	61	—	100
210	—	—	87	—
240	76	80	—	—

(1) 25 gm. dextrose i.v. in 2 minutes; venous blood sugars.[17]
(2) 0.5 gm./kilo i.v. in 30 minutes; capillary blood sugars.[18]
(3) 1.75 gm./kilo orally; venous blood sugars.
(4) 100 gm. (1.66 gm./kilo) orally; venous blood sugars.

the subsequent samples of blood were not withdrawn at the usual time, due to an error. In the fourth test, when 100 gm. glucose were given p.o., the two hour sugar reading is again slightly higher than would be considered within normal limits by some authors. There may thus be a slight residual defect in his mechanism of carbohydrate disposal. Experimentally, prolonged hyperglycemia has seemed the most probable cause of island cell damage under certain conditions.[7] Except for the possible slight deviations from the normal oral glucose tolerance curves, "the course of this patient provides an exception to the hypothesis of permanent pancreatic damage by prolonged hyperglycemia." [8]

The fact that glycosuria did not cease until a week after operation suggests that the physiological mechanisms which control carbohydrate metabolism had suffered injury from which they recovered slowly. This secondary impairment may also explain the absence of hypoglycemic reactions during the years in which the patient was receiving protamine zinc insulin. Otherwise, such reactions might have been expected to occur, since the discharge of the tumor's secretion was obviously erratic.

Other cases of pheochromocytomata *associated* with diabetes mellitus have been reported. Herde [9] described the autopsy of a 62 year old woman who died in connection with an operation for diabetic gangrene. No further clinical information was given. A chromaffin tumor of the right adrenal was present.

Helly's [10] patient had an elevated blood pressure and at times glycosuria. No further information concerning the status of carbohydrate metabolism was given. The patient died after a hemorrhoidectomy, and at autopsy a chromaffin tumor of the right adrenal was found.

In the case of Biebl and Wichsel [11] there was hypertension without paroxysms. The patient complained of thirst and polyuria. There were from 4 to 55 grams of sugar in the urine daily. Death resulted from a cerebral hemorrhage, and at autopsy bilateral pheochromocytomata were found.

Schröder's [12] patient complained of polydipsia, polyuria and weight loss. Glycosuria was present, but other metabolic studies were not reported, although insulin was said to have been without effect. There were no paroxysms, but sustained hypertension was present. The patient died in coma, the nature of which was not discussed; and at autopsy bilateral pheochromocytomata were found.

Roger's [13] patient had polydipsia, polyuria, polyphagia, weight loss and paroxysmal hypertension. Marked glycosuria was present, and the blood sugar was 375 mg. per 100 c.c. The patient was given a diet of C 140, P 80, F 70 and received 62 units of insulin per day. Death occurred during an attack, and at autopsy a retroperitoneal pheochromocytoma was found.

De Wesselow's [14] patient complained of typical paroxysms, thirst, polyuria and weight loss. Glycosuria was present and not controlled by insulin. The mechanism of death was not clear. At autopsy an adrenal pheochromocytoma was found.

Strickler [15] described a case with typical attacks. Glycosuria, previously discovered, had led to insulin therapy which had been discontinued because it appeared to aggravate the attacks. There was fasting hyperglycemia. The patient died following operative removal of an adrenal pheochromocytoma.

The patient of McCullagh and Engel [6] was a 28 year old man who had had polyuria for a year during which time he had lost 28 pounds. His blood pressure was variable but always elevated. Constant glycosuria was present. He was given a diet of C 280, P 86, F 100 and received from 50 to 150 units of insulin per day. Because of the presence of nervousness, tremor, an adenoma of the thyroid and a basal metabolic rate 36 per cent above normal, a diagnosis of hyperthyroidism was made. While being prepared for operation the patient developed cellulitis from a furuncle and died. At autopsy there was a pheochromocytoma of the right adrenal and a separate chromaffin tumor lying on the aorta just below the level of the renal arteries.

In none of the above cases was a causal relationship between the pheochromocytoma and the diabetes established by surgical excision of the tumor. However, Biskind, Meyer and Beadner [16] described a patient with paroxysmal hypertension, occasional glycosuria and a diabetic type of glucose tolerance curve. There were no symptoms of diabetes. Following operative removal of an adrenal pheochromocytoma the oral glucose tolerance curve was flat. Their case showed that a pheochromocytoma can produce some of the manifestations of diabetes mellitus.

We have not been able to find in the literature any case report in which diabetes mellitus disappeared following removal of a pheochromocytoma. The course of the patient here recorded suggests that the possibility of a pheochromocytoma should be considered in patients with diabetes mellitus, especially in those with hypertension of a paroxysmal or fluctuating type. Elevation of the basal metabolic rate with normal or slightly elevated serum cholesterol concentration should raise one's suspicions still further.

It has been tacitly assumed that only epinephrine is discharged from pheo-

chromocytomata. The possibility exists that they may discharge different but physiologically related compounds. If the secretion were not identical in all cases, the mildness of the abnormality of carbohydrate metabolism in some cases [8] would be explained. The difference in response may, however, lie in variations of the constancy of the discharge or the homeostatic responses of the patient to the hormone.

SUMMARY

A case is reported in which diabetes mellitus disappeared following removal of a medullary adrenal tumor (pheochromocytoma). When diabetes mellitus, hypertension and hypermetabolism are encountered, the possibility of pheochromocytoma should be considered.

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SUBACUTE (*STREPTOCOCCUS VIRIDANS*) ENDOCARDITIS; THE RÔLE OF TRAUMA IN THE LOCALIZATION OF VEGETATIONS*

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THE outstanding importance of preëxisting rheumatic valvular disease as a factor in the subsequent development of subacute bacterial endocarditis has been indicated by the high incidence of this lesion in published analyses of large series of cases. Thus Christian reported that 89 per cent of 150 patients at Peter Bent Brigham Hospital, and Middleton 81.6 per cent of 88 cases at Wisconsin General Hospital showed evidence of preëxisting rheumatic endocarditis. The reason for this intimate relationship has been variously attributed to altered tissue resistance in the damaged valve, changes in blood supply, a predilection of scar tissue to reinfection, or a possible relationship of the bacterial factors in the two diseases.

When the cases of *Streptococcus viridans* endocarditis with no rheumatic background are considered, it will be found that congenital cardiac defects are of major importance. There were eight such cases (5.5 per cent) in Christian's series, and four (4.5 per cent) in those reported by Middleton. The close relationship of congenital heart disease and subsequent bacterial implantation is usually attributed to the predisposition of scar tissue in these lesions to reinfection. Yet an examination of autopsied material casts considerable doubt on the correctness of this supposition.

The most common congenital lesions associated with the development of subsequent bacterial endocarditis are (1) bicuspid aortic valves, (2) patent ductus arteriosus, and (3) interventricular septal defects. All of these lesions introduce a new factor, that of excessive intracardiac strain, or actual intracardiac or intravascular trauma. This is particularly well demonstrated in persistent patency of the ductus arteriosus. Here an abnormal stream of blood, under high pressure from the aorta, enters the relatively thin-walled pulmonary artery. Impinging on the wall of the pulmonary artery opposite the pulmonary orifice of the ductus, it produces a localized area of trauma to the endothelium of this vessel. When bacterial endarteritis develops in association with this defect, the vegetations usually develop, not within the lumen of the congenital defect, though they may occur here too, but on the wall of the pulmonary artery at the site of trauma.

A similar mechanism is present in cases of bacterial endocarditis, associated with defects in the interventricular septum, as in the case herewith reported. Such defects are usually located high up in the septum membranosum, with the left ventricular orifice below the right aortic cusp, and the right ventricular orifice below the septal cusp of the tricuspid valve. In the absence of complications, such as an associated pulmonary stenosis, the pressure within the left ventricle is greater than in the right. In the presence of a septal defect a stream of blood is projected under high pressure from left to right, and on entering the right ventricle impinges on the septal cusp of the tricuspid valve, and sets up a traumatized area of endocardium exactly comparable to the area of trauma op-

* Received for publication April 16, 1942.
From the Department of Medicine of the Marquette University Medical School.

posite the orifice of a patent ductus arteriosus. And as in that case the usual site for the development of vegetations is not within the lumen of the septal defect, but rather exactly at the site of trauma, on the septal cusp of the tricuspid valve.

That intracardiac trauma to otherwise normal valves can lead to the development of the lesions of bacterial endocarditis has been repeatedly demonstrated by Kinsella in animal experiments. By passing a wire down the carotid artery the aortic or mitral valve was traumatized. At varying intervals following this procedure, pure cultures of *Streptococcus viridans* were injected intravenously or fed by mouth or stomach tube. Animals so treated developed persistently positive blood cultures, and at autopsy typical vegetations containing *Streptococcus viridans* were found at the site of previous trauma.

The mechanism for the development of the vegetations of bacterial endocarditis in the presence of such a lesion would appear to be rather simple. Trauma to the valve leads to a localized area denuded of endocardium. Fibrin and platelets are deposited on the denuded area; if at the same time the patient has a bacteremia of *Streptococcus viridans,* some of these organisms caught in the web of fibrin infect the vegetation, leading to further deposition of fibrin and growth of the vegetations.

Such a bacteremia has been repeatedly demonstrated, occasionally in apparently normal individuals, but more particularly in those harboring such foci as diseased teeth or tonsils, and especially during and following such procedures as tooth extraction or tonsillectomy.

The following case serves to illustrate the various points of the foregoing discussion.

Case Report

The patient, a 34 year old white female, was admitted to Muirdale Sanatorium, Wauwatosa, Wisconsin, on August 19, 1941, as a suspected case of pulmonary tuberculosis. She complained of chills and fever, sweats, cough, chest pain, and occasional hemoptysis since January 1941, a period of seven months, during which time she had lost 45 pounds. Her family and personal history was irrelevant. She had never had rheumatic fever, chorea, scarlet fever, or tonsillitis. She was told that she had had a leakage of the heart, following measles at the age of three. A spontaneous abortion occurred in December 1940.

Physical examination showed a marked emaciation, and generalized pallor of the skin and mucous membranes. Cyanosis was not present. A few petechiae were seen over the anterior abdominal wall, and the nails were spoonshaped. Temperature was 103.8° F., pulse 140, respirations 36. The mouth showed an advanced dental caries, with gingival retraction. Over the entire precordium there was a rough systolic murmur, maximal in the third left intercostal space. A thrill was not felt at the original examination. The liver was enlarged four fingers' breadth below the right costal margin, and was not tender. The spleen was barely palpable. A few scattered crepitant râles were present in the left base posteriorly.

Laboratory examinations showed an erythrocyte count of 2,720,000, with 7.5 grams of hemoglobin, a color index of 0.8, 10,350 white blood cells, with 2 metamyelocytes, 8 nonsegmented and 74 segmented neutrophiles, 10 lymphocytes, 6 monocytes, and a monocyte lymphocyte ratio of 0.6. Repeated urinalyses showed from a trace to 4+ albuminuria, 15–20 white cells and 10–15 erythrocytes per high power field. Wassermann and tuberculin tests were negative, and the sputum was negative for tubercle bacilli. Blood culture showed numerous colonies of *Streptococcus viridans* after 48 hours incubation.

Roentgenographic examination (figure 1) showed cardiac enlargement, chiefly to the right, and a slight fullness in the region of the pulmonary conus. In the left lower lobe a small area of consolidation was visible just beyond the heart shadow.

A diagnosis of congenital heart disease with interventricular septal defect and subacute bacterial endocarditis was made. On August 29 the patient was transferred to St. Mary's Hospital, Milwaukee, Wisconsin, where she died on September 8, 1941.

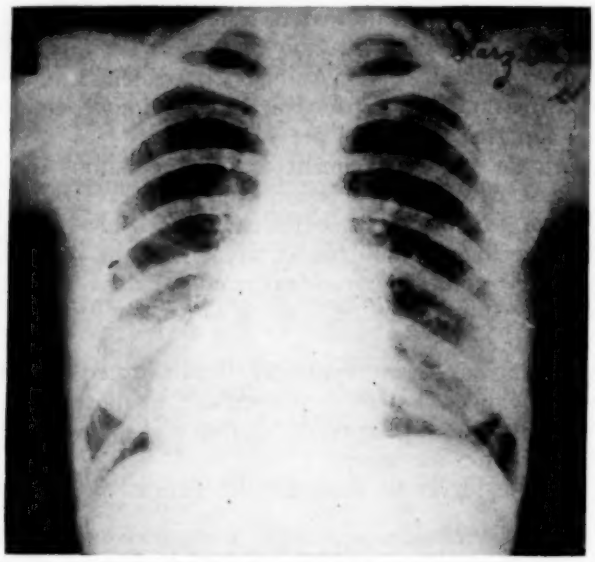

FIG. 1. Roentgenogram of chest, showing cardiac enlargement and a small infarction in the left lower lobe.

Treatment consisted of sulfanilamide, 90 grains daily, to maintain a blood level of 10–15 milligrams per 100 c.c., and four blood transfusions. Following the administration of sulfanilamide the temperature became normal on August 25, 1941, and remained normal until September 5. A blood culture taken on September 3 was negative. On August 30 a marked change took place in the physical findings, with the development of a rough systolic thrill, maximal at the apex, and a rasping systolic murmur. These changes were thought to be due to a ruptured chorda tendinea.

At autopsy* the heart was enlarged, measuring 10 by 10.5 by 7 centimeters. There were milky white patches on the right anterior surface and at the apex, 2 cm. in diameter. A sub-epicardial hemorrhage was present at the left posterior margin. The right ventricle was 6 mm. in thickness. The tricuspid valve was 11 cm. in circumference. Its posterior and part of the anterior cusp were involved in a vegetative endocarditis. The posterior cusp was intimately attached to the septum, and beneath it a small opening was seen through which a probe passed readily into the left ventricle. Its right ventricular orifice was 5 mm., its left ventricular orifice 7 mm. in diameter, and was located just beneath the right aortic cusp. Its edges were raised, indurated, pale and fibrous. The pulmonary orifice was 8 cm., the aortic 7 cm., and the mitral 10 cm. in circumference. The left aortic cusp had a vegetative growth 3 mm. in diameter, just below the nodule. The left ventricle was 16 mm. in thickness. The heart muscle was pale and firm, and the coronary vessels normal.

* Performed by Dr. L. J. Van Hecke.

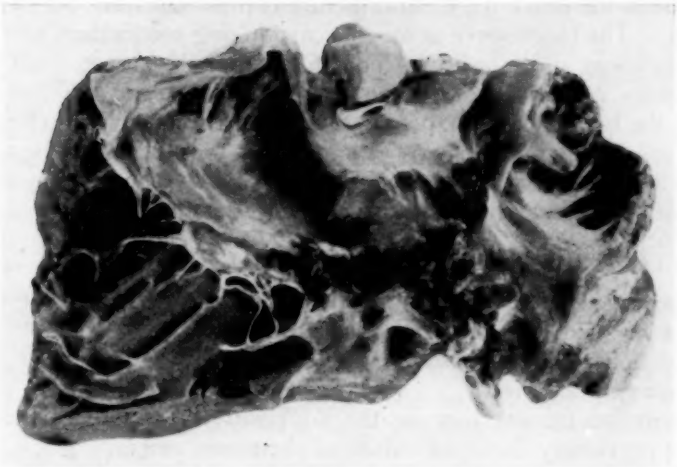

FIG. 2. The right side of the heart, showing the right ventricular orifice of the interventricular septal defect, and vegetations involving chiefly the septal cusp of the tricuspid valve.

FIG. 3. The left side of the heart, showing the left ventricular orifice of the septal defect, immediately beneath the aortic cusp, and a solitary vegetation on the lateral cusp of the aortic valve.

Other significant findings included an enlarged liver, 24 by 21 by 10 cm., an enlarged spleen 17 by 8.5 by 3.5 cm. Both kidneys exhibited the characteristic "flea-bitten" appearance. Both lungs showed numerous hemorrhagic infarctions.

In addition to illustrating the important rôle of intracardiac trauma, this case also shows, as pointed out by Blumgart, that in bacterial endocarditis involving

the right side of the heart, the clinical picture is predominantly one of pulmonary involvement. The lungs serve as an efficient filtering mechanism, and peripheral embolic phenomena and a positive blood culture may be absent, until breakdown of a pulmonary infarct releases organisms to the systemic circulation. When this occurs, the basis is laid for the development of secondary vegetations on the valves of the left side of the heart, as apparently took place on the aortic valve in this case. This small isolated vegetation probably then led to the late development of petechiae and focal nephritis.

SUMMARY

1. Congenital defects which cause intracardiac or intravascular trauma are frequently associated with bacterial endocarditis.

2. Vegetations tend to develop at the site of the trauma, rather than at the site of the congenital defect.

3. Intracardiac trauma may be the dominant factor in localizing bacterial implants on previously damaged valves of rheumatic origin.

4. A case of interventricular septal defect, with bacterial endocarditis involving the tricuspid and aortic valves is reported.

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SENSITIZATION TO THIAMINE HYDROCHLORIDE: REPORT OF ANOTHER CASE*

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LAWS,[1] Schiff,[2, 3] and Jolliffe [3] recently called attention to the production of anaphylactic shock in an individual as a result of acquired sensitivity to thiamine hydrochloride when given parenterally and stressed the clinical importance and prudence of making an intradermal test with thiamine chloride prior to administering it, especially when the individual had previously received thiamine parenterally.

We wish to present another case which similarly was most dramatic in its sequence. As far as we are aware, our case is the third to be recorded in the literature.

* Received for publication November 24, 1941.
From the Department of Medicine, Middlesex General Hospital, New Brunswick, N. J.

Case Report

The patient, J. H., a well developed and nourished adult white male, aged 32, was addicted to chronic alcoholism. In 1935 he suffered a perforated gastric ulcer which occurred without previous symptoms. After operation he did well clinically, with no complaints referable to his gastrointestinal tract. Otherwise his past history was negative. There was no indication whatsoever of previous allergy.

At different times during the six months prior to his present hospital admission he had consulted his family physician because of some weakness and nervousness, particularly in the epigastric region, that occurred with unusual severity following bouts of overindulgence in alcohol. He was treated with sedatives and codeine orally and thiamine hydrochloride subcutaneously each time.

The following are the dates on which he received the injections of thiamine and the corresponding dosage: first injection consisting of 20,000 i.u. May 17, 1941; second injection, 15,000 i.u. May 21; third injection, 20,000 i.u. May 29; fourth injection, 20,000 i.u. June 12; fifth injection, 20,000 i.u. July 1; sixth injection, 20,000 i.u. August 6; seventh injection 20,000 i.u. September 9; eighth and last injection, 30,000 i.u. on October 4.

Approximately 15 minutes after each treatment the patient always noticed severe itching and the appearance of a large reddened wheal at the site of injection. They would last several hours. He paid no particular attention to this, accepting it as a reaction to the local therapy.

On October 4, following a large alcoholic intake, he received the eighth injection of 30,000 i.u. of thiamine hydrochloride subcutaneously into the left arm. About 30 seconds later, when he was leaving the doctor's treatment room, a wave of intense itching began at the site of injection and passed over his entire body. He felt very weak and cold, a profuse sweat drenched him, and he became very dyspneic. His chest felt very tight. He became irrational and lost consciousness. He was pale and his lips were cyanotic. His conjunctivae were highly injected. The pulse was very rapid and hardly perceptible. He appeared in complete shock. He was given 0.3 c.c. epinephrine and 0.5 gram caffeine sodium benzoate subcutaneously and rushed to the hospital by ambulance.

On arrival, his condition was slightly improved. He was rational and answered questions correctly. The pulse was 110 and somewhat irregular. He was wet with cold perspiration. The heart sounds were of good quality although rapid. The blood pressure was 120 mm. Hg systolic and 100 mm. diastolic. Wheezing breath sounds were heard throughout both lung fields. He was still dyspneic and complained of the tightness over the chest. He felt chilled, and his temperature was 100.5° F. Hot water bottles were placed in his bed and he was covered warmly. Codeine sulphate was given hypodermically because he complained of diffuse pain in the abdomen, non-localizing in character. After three hours this reaction had almost completely subsided. The pulse was of good quality, regular, rate 90. Cyanosis, dyspnea and precordial tightness were gone. The conjunctivae were only slightly injected. The patient complained of generalized weakness and a headache. The stomach pains were still present but not so severe. He vomited three times. The vomitus was not unusual.

The next morning he had completely recovered.

Forty-eight hours after the episode, an intradermal test was done with the original thiamine hydrochloride preparation that had been used for his treatment. This was a saline solution and had no preservative in it. About 10 minutes later a reddened wheal about one inch in diameter accompanied by intense itching developed at the site of injection. The itching remained localized and subsided after six hours; the wheal became gradually smaller and disappeared completely after 48 hours. Physiological saline solution was used as a control. No reaction occurred.

Comment

As Laws [1] has pointed out, here again the response of the patient to parenteral administration of thiamine hydrochloride followed the familiar pattern of sensitization to proteins, particularly horse serum. The examination of the complex empirical formula for thiamine hydrochloride $C_{12}H_{17}OSN_4Cl \cdot HCl$ would place it in the protein group.

The intervals between the giving of the thiamine in this case also were far enough apart to give a latent period capable of producing sensitization and suitable for the production of anaphylactic shock. When sufficient sensitization had been acquired, the last injection given was the trigger mechanism that produced the violent and shocking constitutional reaction.

We wish to reaffirm the advisability of making an intradermal test with thiamine hydrochloride prior to its parenteral administration, particularly when the individual has previously received it by this route.

We wish to thank Dr. A. Shayevitz who referred this case to the hospital and so kindly furnished us with the initial data pertaining to it.

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MIGRAINE DUE TO MILK: FEEDING TESTS *

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Because of the spectacular result which we were able to obtain in this case, we believe it well worth reporting. This is all the more desirable when we realize that the method of testing is simple and that recovery is complete as long as the patient avoids the food which causes the symptoms.

Case Report

M. C., female, age 37, schoolteacher, was referred because of attacks of migraine and urticaria. She stated that she had had "sick headaches" for over 30 years, and hives for about two or three years. She described an attack of migraine as follows: Preceding the seizure she experienced extreme fatigue, flashes of light, and numbness in the fingers. Headache would then follow, with severe pain over half of the head (hemicrania), and at its peak nausea and vomiting would occur. The attack would then begin to subside but prostration would persist for about 24 hours. Injections of 0.50 c.c. of ergotamine tartrate ("gynergen") would frequently give some relief from the headache.

* Received for publication March 20, 1943.

The spells occurred at weekly to monthly intervals, and were so severe that she was forced to lie down for a whole day or even longer. As a result, she was unable to teach school for two to four days a month. She stated that attacks came on in the presence of fatigue and nervous strain, and she was suspicious of nuts, apples, the cabbage family, eggs, chicken, chocolate, and aspirin and other coal-tar drugs. Between attacks she felt fine.

The rest of her history was not significant. A radical mastectomy had been performed five years previously because of a nodule in the breast, but there was no evidence of malignancy at that time or since. One important finding was the history of migraine in her father and of hay fever in her sister.

Physical examination revealed a thin white female whose weight was 99 pounds. The scar of a left radical mastectomy was apparent, but there was no adenopathy or other evidence of recurrence. The blood pressure was 124 mm. Hg systolic and 86 mm. diastolic. No abnormalities were found on examination or by fluoroscopic study of the chest.

Other tests were made to rule out an organic cause for the headaches. Repeated urine examinations, Kahn and Wassermann tests were normal. Blood counts revealed 65–75 per cent hemoglobin, with from 3,970,000 to 4,370,000 red blood cells, and about 8,000 white blood cells. Differential count: 79 per cent polynuclear cells, 13 per cent lymphocytes, 2 per cent eosinophiles, 6 per cent monocytes. Basal metabolic rate was plus 6 per cent.

The report of an examination of the eyes by a competent specialist was as follows: "RV = 20/40 J 1 at 14"; LV = 20/40 J 1 at 14". With glasses RV = 20/20 (— 0.25 w — 0.25 × 180); LV = 20/20 (— 0.25 w — 0.25 × 180). There is a 1/4$^{\Delta}$ left hyperphoria and 2$^{\Delta}$ esophoria, so the muscle balance is essentially normal. The pupils are normal. Under homatropine mydriasis the discs are normal (no choking) and there are no blood vessel changes (no spasm or sclerosis). The visual fields are normal."

Skin tests by both the scratch and intradermal methods were attempted, but marked dermographia prevented accuracy. It was then decided to try feeding tests with the more important foods. The frequency of the attacks made it obvious that those foods which one eats frequently were most likely to be responsible, e.g., egg, wheat, milk, chocolate, or potato. These foods were to be tried on successive Saturdays and the patient was instructed to avoid for one week all foods containing the substance for which the test was to be made. She was given printed diet lists to facilitate coöperation.

The first trial was with egg. After avoiding eggs and all egg-containing foods for one week, the patient came to the office in the morning, and without breakfast. She was given two soft-boiled eggs with a little salt but no pepper, as the latter contains protein. Blood counts were made before eating the eggs and 20, 40, and 60 minutes after ingestion. There was no clinical reaction. The leukocytic estimation (leukopenic index) was essentially negative; the white cell counts were 8,200, 8,200, 8,500, and 10,300; the percentage of eosinophiles remained at 2. Allergenic foods are thought by some observers to cause a decrease in white cells and an increase in eosinophiles.

The next week, after a wheat-free diet, she was given eight ounces of Cream of Wheat with sugar, but no milk or cream. No symptoms occurred, but the leukocytic response was suspicious, dropping from the fasting 9,700 to 7,800 in 20 minutes, then to 6,900 within 40 minutes after the test meal, then up to 8,800. The percentage of eosinophiles was not increased.

The patient was then given a milk-free diet and returned one week later, March 15, 1941. She was given 10 ounces of ordinary cool milk, and the leukocytes dropped from a fasting 7,400 to 6,300 within 20 minutes after ingestion, and then rose to

7,800 and 8,000 in 40 minutes and 60 minutes, respectively. Differential counts were not done, but approximately 90 minutes after drinking the milk, the patient became very ill, developed a severe headache, which was quickly followed by marked nausea and repeated vomiting. She was given 0.50 c.c. ergotamine tartrate intramuscularly, and an additional 0.50 c.c. was given because symptoms persisted. She continued to vomit for over an hour, then fell asleep and awakened three hours later. She felt a little better, but was not entirely free from headache for 24 hours.

This dramatic episode was so convincing that no further tests were made. She was immediately placed on a strict diet avoiding milk and all milk-containing foods. Following that she remained entirely free from migraine headaches. On one occasion she was asked to eat butter, but a moderately severe headache occurred, and butter was again removed from her diet.

Several months later, intradermal tests were carried out with diluting fluid (5 per cent dextrose) deliberately mislabeled milk and lactalbumin. The tests were negative and no symptoms resulted. The following week 2 plus reactions were obtained with intradermal tests to lactalbumin (1:100) and milk (1:1) extracts, as compared to a control test. Within 48 hours after the real milk tests were made, the patient developed a severe headache, but without nausea or vomiting.

No other treatment was given with the exception of iron and some injections of an extract of the adrenal cortex plus a high salt diet; these were prescribed because the patient was anemic and thin. A gain of three to four pounds was registered. These measures were discontinued after a year, and the patient has remained free from headaches.

Discussion

Migraine is characterized by attacks of severe headache, usually unilateral, frequently preceded by or associated with visual disturbances, and followed by nausea and vomiting. The laity usually refer to the condition as "blinding," "bilious," or "sick headaches." The outstanding feature of migraine is that the patient is perfectly well between attacks. This is not true of any other type of headache.

All other causes of headache must be ruled out, especially paranasal sinusitis, hypertension, nephritis, brain tumor, or organic ocular diseases. A thorough history, a complete examination, and the proper laboratory investigations should prevent errors in diagnosis. The laboratory findings in migraine are of little importance; they help in ruling out other causes of headache.

There are several theories regarding the cause, among them (1) reflex: refractive errors leading to eyestrain; (2) central: local or general pressure on the dura mater with increase in cerebrospinal fluid. Goltman [1] demonstrated that edema of the brain was present at the height of an attack. The patient had migraine due to ingestion of wheat, but was operated upon for a supposed brain tumor; (3) duodenal stasis and toxicosis: altered digestion and liver dysfunction resulting in the formation of toxic material; (4) central nervous system: spasms of the cerebral vessels; (5) endocrine: imbalance of endocrine products; and (6) allergic: attacks due to hypersensitivity to one or more foods.

None of these theories except the allergic one has been at all substantiated. In favor of the allergic theory are the following: Brinton in the latter part of the nineteenth century suggested that milk or eggs could produce headaches as well as gastrointestinal symptoms. More than 100 years ago Trousseau associated certain types of headache with asthma, eczema, and other manifestations which we now know to be allergic. In 1927 Vaughan [2] proved that true migraine was

allergic by (*a*) the finding of positive skin tests, (*b*) relief of symptoms following avoidance of foods reacting positively, and (*c*) reproduction of the headaches by feeding foods to which patients were sensitive. In 1939 he reported good results by management from the allergic point of view in 51 per cent of his patients, with complete relief in 40 per cent. By elimination tests Rowe [3] had only 17 per cent failure in 247 patients. Among others who have advanced the thesis that migraine is allergic are Sheldon and Randolph,[4] Andresen,[5] Spees,[6] Hartsock and McGurl,[7] Lima,[8] Watt,[9] Rinkel,[10] Balyeat,[11] Eyermann,[12] and Bray.[13] One of us (L.U.) not only brought on attacks of migraine by feeding a patient the responsible foods, but for the first time, induced attacks on three different occasions by deliberately injecting extracts of these foods.[14] He proved that in that patient at least, migraine is allergic, for the same procedures were carried out which are recognized as important in asthma, hay fever, and other allergic conditions.

Summary

1. A case of migraine is herein reported with typical prodromal visual symptoms, hemicrania, sensory disturbances, nausea and vomiting, with symptoms over a period of 30 years.

2. By simple feeding experiments, the specific offending agent was found to be milk.

3. The allergic theory as a basis for migraine is further substantiated in this case by relief from migrainous headaches for the past two years by the elimination of milk and all milk-containing foods from the diet. A headache was produced by an intracutaneous test with extracts of cow's milk and lactalbumin.

4. The feeding method outlined can be easily carried out.

5. The leukopenic index tests, in this patient, were not conclusive.

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EDITORIAL

TOXOPLASMA INFECTION IN MAN

TOXOPLASMA is an intracellular parasite, usually regarded as a protozoan, which has been found in many species of birds and mammals, particularly rodents. It was first described by Nicolle and Manceaux (1908) in a North African rodent, the gundi. Although there are several early descriptions of morphologically similar organisms in human cases, the identification of the organism was questionable, and at best such cases were regarded as clinical curiosities. In 1939, however, Wolf, Cowen and Paige [1] brought convincing proof of Toxoplasma infection in an infant dying of encephalomyelitis. Since then evidence has been accumulating that human infection is by no means so rare as has generally been believed.

Toxoplasmata may be found in sections of infected tissues or in films from exudates. In the latter it is relatively elongated, often crescentic or slightly curved, about 4 to 6 micra long and 1.5 to 3 wide. The tips may be pointed. In the tissues they are smaller and tend to be ovoid or fusiform. With Giemsa stain the cytoplasm takes a pinkish color and contains a primitive nucleus or chromatin body about one third the size of the cell and often eccentrically placed. There is no kinetoplast. The organisms grow only within living cells, but they may be found free in exudates or necrotic lesions. In the tissues they also occur in compact masses or pseudocysts which apparently are always intracellular. They multiply by simple longitudinal fission. The strains found in man are indistinguishable from those in animals, either by their morphology, pathogenicity for animals or immunologic reactions.

Toxoplasmata may be found in a great variety of tissues and organs. Lesions are common in the brain and spinal cord, and occur also in the lungs, liver, spleen, lymph nodes, adrenals, skin and muscle. The organisms occur within the macrophages, the capillary endothelium, pulmonary alveolar cells, skeletal and cardiac muscle cells, parenchymatous liver cells, ependymal and choroid epithelium and rarely in nerve cells. They have been reported in the erythrocytes of birds but not of mammals.

Susceptible animals such as the mouse or rabbit can be infected readily by inoculations of parasitized tissues by a variety of routes, although intracerebral and intraperitoneal injections are usually employed. A majority of the animals die within two weeks. A few individuals, however, may survive without apparent illness, and these are immune to reinoculation, either with the same strain or with any other strain. Virulent parasites have been demonstrated in the tissues of such resistant animals, however, indicating that it is not the infection but the clinical manifestations of illness

[1] WOLF, A., COWEN, D., and PAIGE, B. H.: Human toxoplasmosis: occurrence in infants as an encephalomyelitis: verification by transmission to animals, Am. Jr. Path., 1939, xv, 657.

which have been suppressed. Some such mice which were observed over a long period succumbed spontaneously to the infection four to 11 months later.

Serum of rhesus monkeys and of human beings (but not of rabbits) which have survived infection for a few weeks commonly shows protective power and occasionally gives a positive complement fixation reaction. Sabin [2] has devised a relatively simple procedure for demonstrating this protective power by the intracutaneous inoculation into albino rabbits, of mixtures of the serum to be tested with suspensions of mouse brain containing large numbers of parasites. In areas receiving control (normal) serum mixtures, there is an inflammatory papule which undergoes central necrosis. An "immune" serum mixture either causes no such lesion or one which is significantly smaller than the controls. This test has been used both to identify Toxoplasma and also to demonstrate the presence of the infection in patients and in apparently normal individuals. The test appears to have a considerable degree of specificity, but the extent to which it can be relied upon has not been precisely determined.

Toxoplasmosis in animals is world wide in distribution. Cases in man have been reported in Europe, South America and in widely scattered areas in the United States. This is to be expected, as there is strong reason to believe that human infection is derived from animals. The mode of transmission of the disease has not been demonstrated. Arthropod vectors have been suggested. Human infantile cases, in many instances at least, are infected in utero. Virulent organisms have often been demonstrated in animals which showed no clinical evidence of disease, and there is strong evidence that this may occur in man.

To prove the existence of the infection conclusively in human cases, it is necessary (1) to demonstrate the parasites in sections or smears of infected tissues or exudates; (2) to transmit the infection by inoculation of several suitable animals, preferably in series; and (3) to prove that the stock of animals used is free from naturally acquired infection which is often symptomless but might be activated by the inoculation procedures. Satisfactory proof of this type has been secured in only about four or five of the reported cases. In the others a presumptive (but highly probable) diagnosis has been based upon (1) the close resemblance in clinical features and pathologic lesions to undoubted cases; (2) the finding of morphologically typical organisms (without successful animal inoculations); and (3) the demonstration of protective power in the serum of the individual, which can frequently, perhaps usually be obtained if the infection is not acutely fatal. Human cases, diagnosed on the basis of such criteria, fall into three groups which may be termed the infantile, juvenile and adult types. Of these, the infantile type has been most frequently recognized and is the most securely established.

[2] SABIN, A. B.: Biological and immunological identity of Toxoplasma of animal and human origin, Proc. Soc. Exper. Biol. and Med., 1939, xli, 75.

Our knowledge of the infantile type of toxoplasmosis, which manifests itself as an encephalomyelitis, is due in large measure to the work of Cowen, Wolf and Paige,[3] who have recently reviewed the subject on the basis of 11 cases of their own and four collected from the literature. Of these six were in older children who had survived the acute attack, and nine were autopsied cases.

The most important clinical features are (1) the early onset of symptoms, usually within the first four days of life, and nearly always within the first few weeks. (2) Various manifestations of organic brain damage appear, notably convulsions, muscular twitching or tremor, strabismus, occasionally retraction of the head, altered reflexes, nystagmus, disturbed ocular movements, and (later) marked variations in body temperature; and in late stages, retardation of mental and speech development. Hydrocephalus is very common, is often marked and usually evident clinically, or it may be demonstrable in roentgenograms. It is caused by closure of the aqueduct of Sylvius or the foramina of Munro. In one case hydrocephalus with extensive brain lesions and calcification developed in utero and necessitated craniotomy before delivery. (3) Calcification is often demonstrable in roentgenograms, in one case on the sixth day. It usually appears as multiple nodules 1 to 3 mm. in diameter scattered through the cortex, basal ganglia and thalami. It was noted in eight of nine cases examined and was found at autopsy in three others. (4) Areas of chorioretinitis are nearly if not quite constant. They have been described minutely by Koch, Wolf, Cowen and Paige.[4] They are nearly always bilateral and involve the macular regions. There may be smaller satellite lesions in the vicinity, and there are often large lesions in the peripheral part of the retina. They vary from one to five disc diameters in size. In the acute stage they show edema, inflammation, hemorrhage and necrosis. Most often they are healing or healed lesions with extensive choroidal atrophy, pigmentation, especially about the margins, and sometimes glial proliferation which may even invade the vitreous. There is often well marked primary optic atrophy and diminution of acuity of vision. Microphthalmus is common. These lesions have not been observed in patients infected at a later age, nor in animals except the fowl.

The cerebrospinal fluid (6 cases) was usually xanthochromic, the protein content was increased, and in four there was a pleocytosis. Toxoplasmata have been demonstrated in the sediment.

In the early stages fever is usually slight or absent. In one case only there was an interstitial pneumonia and prominent visceral lesions, as in the

[3] Cowen, D., Wolf, A., and Paige, B. H.: Toxoplasmic encephalomyelitis. VI. Clinical diagnosis of infantile or congenital toxoplasmosis: survival beyond infancy, Arch. Neurol. and Psychiat., 1943, xlviii, 689.

[4] Koch, F. L., Wolf, A., Cowen, D., and Paige, B. H.: Toxoplasmic encephalitis. VII. Significance of ocular lesions in the diagnosis of congenital toxoplasmosis, Arch. Ophth., 1943, xxix, 1.

adult type, and in one, a toxoplasmic myocarditis. The liver and spleen were enlarged in three cases, two of whom were jaundiced. Two cases showed a maculopapular eruption.

Many of these cases died within the first few months. At autopsy the central nervous system showed scattered focal lesions marked by inflammation and necrosis which often resulted in massive destruction of brain tissue. There is a marked tendency to early calcification. Visceral lesions are usually slight, but toxoplasmata may be present in organ cells without exciting any appreciable tissue reaction. Very similar changes are found in infantile mice after intracerebral inoculation, except for the absence of chorioretinitis.

Six cases were reported in older children who had probably survived an infection in infancy. Common symptoms were healed areas of central chorioretinitis, poor vision, hydrocephalus, convulsions, motor disturbances and mental deficiency (usually moderate). Sabin and Reichman [5] reported positive protection tests with the serum of nine out of 10 cases in older children and adults who showed a similar type of chorioretinitis without other clinical manifestations of infection, and in seven children with atypical encephalopathies without retinal lesions.

Crothers [6] has also reported nine cases in older children (from two to 12 years, as far as the age is stated) who showed clinical manifestations of the disease. All of the eight cases who could be tested gave positive protection tests. All of the five mothers tested gave positive reactions as did four normal siblings in the group. There were two families in which two siblings each showed the typical disease syndrome. In the first, the two patients, the mother and one healthy sibling gave positive tests. In the other, the mother and one sibling, both apparently healthy, showed calcification in roentgenograms of the skull, and gave positive tests, as did both patients.

The juvenile type of the disease is represented by two cases reported by Sabin [7] in children six and eight years of age. Both showed clinical manifestations of encephalitis. One recovered, but toxoplasmata were demonstrated in the cerebrospinal fluid by inoculation of guinea pigs. The second case died on the thirtieth day, and at autopsy protracted search revealed a few small focal brain lesions, in one of which a few toxoplasmata were seen. The organisms were recovered by inoculation of mice with brain tissue. Neither patient showed a chorioretinitis.

The adult type is represented largely by two cases reported by Pinkerton and Henderson,[8] although a few other cases, less well authenticated, have

[5] Sabin, A. B., and Reichman, I.: Characteristics of the toxoplasma neutralizing antibody, Proc. Soc. Exper. Biol. and Med., 1942, li, 1.

[6] Crothers, B.: Clinical experience with toxoplasmic encephalitis, Jr. Nerv. and Ment. Dis., 1943, xcvii, 82.

[7] Sabin, A. B.: Toxoplasmic encephalitis in children, Jr. Am. Med. Assoc., 1941, cxvi, 801.

[8] Pinkerton, H., and Henderson, R. G.: A previously unrecognized disease entity simulating the typhus-spotted fever group, Jr. Am. Med. Assoc., 1941, cxvi, 807.

been described.[9] In both cases, after a prodromal period of weakness and malaise, there was fever, prostration and a maculopapular rash which was generalized except for the scalp, palms and soles. In one case there were symptoms and signs of atypical pneumonia. At autopsy both showed interstitial pneumonia, focal necroses in the spleen and liver, minute focal lesions in the myocardium and in the brain in the one case examined. Toxoplasmata were found in the lesions. In one case they were demonstrated in the blood ante mortem and in the lesions by animal inoculation.

It is highly probable that inapparent infections occur in man as well as in other animals, although there is as yet no direct evidence of this. There is scarcely any other explanation for the fact that infants with prenatal infection have been borne by apparently healthy mothers whose serum uniformly yielded positive protection tests. Positive reactions have been obtained with other healthy adults, including two rabbit handlers and two laboratory workers who had been exposed to infection.[5]

Treatment of any sort could accomplish little after extensive damage to the brain and retina has occurred. There is reason to hope that something might be accomplished with the sulfonamides if given early, before there has been serious injury to the tissues. Weinman and Berne[10] have shown that mice will survive an intraperitoneal inoculation which killed controls in about 16 days, if administration of sulfapyridine in adequate dose was begun on the fifth day. Little was accomplished if it was delayed until the tenth day or later. The infection was not eliminated, however, since virulent organisms were found in the brain tissues when the surviving mice were later sacrificed. The usual antiprotozoal drugs are apparently ineffective.

The work which has been reviewed proves conclusively the occurrence of Toxoplasma infection in man. The infantile (congenital) type presents a characteristic syndrome of encephalomyelitis and chorioretinitis which, at least in its typical form, can usually be recognized by its clinical features alone. In adults the infection can cause an illness which is very different clinically from the infantile type. What the usual manifestations in adults are, however, can be determined only after many more cases have been recognized. Awareness of the disease, routine ophthalmoscopic examinations, roentgenograms of the skull, examination of the blood, cerebrospinal fluid and probably the sputum for the parasites and tests for protective power of the serum where facilities are available should greatly extend our knowledge of the disease. Intensive studies of the mode of transmission are especially needed.

[9] Pinkerton, H., and Weinman, D.: Toxoplasma infection in man, Arch. Path., 1940, xxx, 374.

[10] Weinman, D., and Berne, R.: Therapeutic cure of experimental toxoplasmosis in animals, Jr. Am. Med. Assoc., 1944, cxxiv, 6.

REVIEWS

Microscopic Technique in Biology and Medicine. By E. V. Cowdry. 206 pages; 23.5 × 15.5 cm. Williams and Wilkins Company, Baltimore. 1943. Price, $4.00.

This volume is an inclusive, well indexed, and carefully annotated bibliography of technical methods in biology and medicine. Particular emphasis is directed to microbiologic methods and staining technics. Each procedure is briefly described and selected references are furnished. Technics not of proved value have been deleted and the author's experience is used to guide the reader in his selection of methods. The volume provides a useful sourcebook of technical data and should be valuable in any biological or medical laboratory.

Frequent and thorough revisions will be necessary to maintain the present standard of this work.

J. W.

The Chemistry of Organic Medicinal Products. Second Edition. By Glenn L. Jenkins, Dean and Professor of Pharmaceutical Chemistry, Purdue University, and Walter H. Hartung, Professor of Pharmaceutical Chemistry, School of Pharmacy, University of Maryland. 675 pages; 22 × 14.5 cm. John Wiley & Sons, Inc., New York. 1943. Price, $6.50.

This volume was written as a text for advanced students in pharmaceutical, chemical, biological, and medical science. Although it presupposes a knowledge of basic chemistry, a certain number of elementary concepts are presented. The medicinal organic compounds, including a number of enzymes, hormones, and vitamins, grouped according to accepted classifications, are reviewed. Methods of preparation, properties, and physiological activity of the more important members of a class are presented together with correlations between physiological activity and chemical structure where there are sufficient data to make this possible. So much useful information is made available in this single volume that it should be a welcome addition to the library of anyone interested in any of the related fields as well as those specifically interested in the chemistry of medicinal products.

M. A. A.

BOOKS RECEIVED

Books received during March are acknowledged in the following section. As far as practicable, those of special interest will be selected for review later, but it is not possible to discuss all of them.

Medical Care of the Discharged Hospital Patient. By Frode Jensen, M.D., H. G. Weiskotten, M.D., and Margaret A. Thomas, M.A. (Oxon.). 94 pages; 21.5 × 14 cm. 1944. The Commonwealth Fund, New York, N. Y. Price, $1.00.

Clinical Lectures on the Gallbladder and Bile Ducts. By Samuel Weiss, M.D., F.A.C.P. 504 pages; 23.5 × 16 cm. 1944. The Year Book Publishers, Inc., Chicago. Price, $5.50.

A Text-Book of Pathology. Fifth Edition. Edited by E. T. Bell, M.D. 862 pages; 24 × 15.5 cm. 1944. Lea & Febiger, Philadelphia. Price, $9.50.

Vascular Responses in the Extremities of Man in Health and Disease. By David I. Abramson, M.D., F.A.C.P. 412 pages; 23.5 × 15.5 cm. 1944. University of Chicago Press, Chicago. Price, $5.00.

Clinics (February 1944 number—Vol. II, No. 5). Edited by GEORGE MORRIS PIERSOL, M.D. 266 pages; 23 × 15.5 cm. J. B. Lippincott Co., Philadelphia. Price, Single issue (cloth) $3.00; yearly subscription (cloth) $16.00.

Office Endocrinology. Second Edition. By ROBERT B. GREENBLATT, B.A., M.D., C.M. With a foreword by G. LOMBARD KELLY, M.D. 243 pages; 23.5 × 16 cm. 1944. Charles C. Thomas, Springfield, Illinois. Price, $4.00.

Osler's Principles and Practice of Medicine. 15th Edition. By HENRY A. CHRISTIAN, A.M., M.D., LL.D., (Hon.) Sc.D., Hon. F.R.C.P. (Can.), F.A.C.P. 1498 plus xxxi pages; 24 × 16 cm. 1944. D. Appleton-Century Co., New York, N. Y. Price, $9.50.

Medical Physics. Editor in Chief: OTTO GLASSER, Ph.D. 1744 pages. 27 × 19 cm. 1944. The Year Book Publishers, Inc., Chicago. Price, $18.00.

Laboratory Methods of the United States Army. Fifth Edition. Edited by JAMES STEVENS SIMMONS, B.S., M.D., Ph.D., D.P.H., Sc.D. (Hon.) 823 pages; 24 × 15 cm. 1944. Lea & Febiger, Philadelphia. Price, $7.50.

Bulletin of War Medicine (December 1943 number—Vol. IV, No. 4). Edited by the Staff of the Bureau of Hygiene and Tropical Diseases. 69 pages; 24.5 × 18.5 cm. His Majesty's Stationery Office, York House, Kingsway, London. Price, Single issue $.40; yearly subscription $4.65.

COLLEGE NEWS NOTES

Additional A.C.P. Members in the Armed Forces

Already published in preceding issues of this journal were the names of 1,637 Fellows and Associates of the College on active military duty. Herewith are reported the names of 58 additional members, bringing the grand total to 1,695.

Louis K. Alpert
John Herman Baird
Arthur Bernstein
Johnny A. Blue
Roy E. Butler
Julian S. Butterworth
Theodore D. Cohn
Crispin Cooke
Robert M. Craig
S. Douglas Craig
Karl L. Dickens
Norman W. Drey
Marshall F. Driggs
Eli Eichelberger
Maurice Eliaser, Jr.
Israel S. Freiman
Daniel A. Glomset
Daniel Green
Edward A. Hagmann
Snowden C. Hall, Jr.
Wendell C. Hall
Samuel Hantman
Joe E. Holoubek
Allen E. Hussar
Benjamin Jeffries
Arvid T. Johnson
Milton Kisson
Arthur Klein
Walter O. Klingman
Harry E. Landt
Louis Lowenstein
John R. McBride
George C. McEachern
Robert J. Mearin
Lodwick S. Meriwether
Clifford K. Murray
Leo L. Orenstein
Paul A. Petree
Robert T. Porter
Edward P. Reh
Nathaniel E. Reich
Wilfrid E. Riddolls
Monroe J. Romansky
Maxwell Scarf
Lamont R. Schweiger
George X. Schwemlein
Richard M. Shick
Gerald W. Smith
Robert L. Smith, Jr.
Mervin F. Steves
Nathaniel Uhr
Ernest James Vogel
Joseph C. Watts
Edgar Wayburn
Robert C. West
Francis R. Whitehouse
Russell D. Williams
Robert M. Woods

Captain John Walter Torbett, Jr., has recently been honorably discharged and has entered private practice at Orange, Texas.

New Life Members of the College

The following Fellows, listed in the order of subscription, have become Life Members of the College:

Dr. Merrill W. Hollingsworth, Santa Ana, Calif.
Dr. Augustus P. Munsch, St. Louis, Mo.
Dr. Joseph Winthrop Peabody, Washington, D. C.
Dr. Peter A. Colberg, Worcester, Mass.
Dr. Lyell C. Kinney, San Diego, Calif.

New Elections to Fellowship and Associateship

At Chicago, Ill., on April 1, 1944, the Board of Regents elected the following 71 candidates to Fellowship, and the succeeding 84 candidates to Associateship:

Elected to Fellowship

Alexander, James Moses, Charlotte, N. C.
Althausen, Theodore Leonidowitch, San Francisco, Calif.
Barker, W(illiam) Halsey, Baltimore, Md.
Bayley, William Ewart Gladstone, La Crosse, Wis., (MC), AUS
Berman, Reuben, Minneapolis, Minn., (MC), AUS
Birch, Carroll LeFleur, Chicago, Ill.
Blum, Joseph Emile, Jr., Greenwell Springs, La.
Borzell, Francis Frank, Philadelphia, Pa.
Boyd, DeVere Robert, Muskegon, Mich.
Bruton, Martin Francis, Saginaw, Mich.
Buerki, Robin Carl, Philadelphia, Pa.
Burke, Charles Francis, Madison, Wis.
Burkes, DeWitt Clinton, Portland, Ore.
Butler, Roy Edwin, Bethesda, Md., U.S.P.H.S.
Carroll, John, New York, N. Y.
Davidson, Alexander George, Brooklyn, N. Y.
Davidson, George Alexander, Vancouver, B. C., Can.
Driscoll, Edward Francis, Buffalo, N. Y.
Eisele, C(harles) Wesley, Chicago, Ill.
Ensworth, Herbert Kleber, New York, N. Y., (MC), AUS
Erf, Lowell Ashton, Philadelphia, Pa.
Foley, Edmund Francis, Chicago, Ill.
Foote, Stephen Alexander, Jr., Houston, Tex., (MC), AUS
Fox, Wayne Wetmore, Evanston, Ill.
Gardiner, John Alexander, LaGrange, Ill.
Garner, Jay McKinley, Winnetka, Ill.
Gitlow, Samuel, New York, N. Y.
Gross, Harry, New York, N. Y.
Grossman, Edward Bertram, New York, N. Y., (MC), AUS
Gundersen, Sven Martin, Hanover, N. H.
Hagan, Hugh Johnson, Roanoke, Va.
Herman, Nathan Bernard, Baltimore, Md.
Hobbs, Milford Leroy, Burlington, Vt.
Hood, J(ennings) Sudler, Clearwater, Fla.
Jackson, William Reginald, Kansas City, Mo.
Jaleski, Thomas Clarence, New Rochelle, N. Y., (MC), USNR
Johnson, Carl Edward, Morgantown, W. Va.
Kellogg, Frederick, Long Beach, Calif., (MC), AUS
Klingman, Walter Oscar, New York, N. Y., (MC), AUS
Kowallis, George Frank, Pittsburgh, Pa.
Landt, Harry Edward, Cincinnati, Ohio, (MC), AUS
Laws, Clarence Lunsford, Atlanta, Ga.
Layne, Charles Wesley, Newburgh, N. Y.
Lowenstein, Louis, Montreal, Que., Can., R.C.A.F.
Nadler, Samuel Bernard, New Orleans, La.
Neumann, Virgil Frank, Norwich, Conn.
Norcross, John Wells, Milton, Mass., (MC), USNR
Ouer, Roy Alexander, San Diego, Calif.

Pearson, Julius Ralph, Miami Beach, Fla., (MC), AUS
Petree, Paul Augustus, Harrisburg, Pa., (MC), AUS
Quickel, Kenneth Elwood, Harrisburg, Pa., (MC), USNR
Rexer, William Frederick, Brooklyn, N. Y., (MC), AUS
Richards, Richard Kohn, North Chicago, Ill.
Sampson, John Philip, Santa Monica, Calif.
Scherf, David, New York, N. Y.
Scott, Thornton, Lexington, Ky., (MC), USNR
Segal, Maurice Sidny, Boston, Mass.
Senerchia, Fred Ferdinand, Jr., Elizabeth, N. J., (MC), AUS
Slater, Solomon R., Brooklyn, N. Y.
Smith, Gerald Walker, (MC), USN
Smith, Wilson Fitch, Hartford, Conn., (MC), AUS
Sokoloff, Martin Joseph, Philadelphia, Pa.
Spear, William McLelland, Oakdale, Iowa.
Stockton, Andrew Benton, San Francisco, Calif., (MC), USNR
Strumia, Max Maurice, Bryn Mawr, Pa.
Todd, Lucius Newton, Augusta, Ga.
Top, Franklin Henry, Detroit, Mich.
Whalen, John Francis, Altadena, Calif.
Williams, Robert Jackson, Providence, R. I., (MC), USNR
Winemiller, James Lewis, Great Neck, N. Y.
Young, Charles Tindal, (MC), USA

Elected to Associateship

Ahlfeldt, Florence Elizabeth, Philadelphia, Pa.
Alpert, Louis Katz, Baltimore, Md., (MC), AUS
Blue, Johnny Alonzo, Guymon, Okla., (MC), USNR
Brian, Earl Winfrey, Raleigh, N. C.
Bryan, Margaret Strange, New Orleans, La.
Butterworth, Julian Scott, New York, N. Y., (MC), AUS
Cameron, Paul Broomhall, Pryor, Okla.
Cardon, Leonard, Chicago, Ill.
Cohn, Theodore David, Brooklyn, N. Y., (MC), AUS
Cooke, Crispin, New York, N. Y., (MC), AUS
Craig, Robert Mitchell, Dayton, Ohio, USPHS (R)
Crommelin, Randolph M., Jr., Portland, Ore.
Dennis, Howard Olney, Beverly Hills, Calif.
Dickel, Herman Anderson, Portland, Ore.
Drey, Norman Walter, St. Louis, Mo., (MC), AUS
Driggs, Marshall Fletcher, New York, N. Y., (MC), AUS
Eichelberger, Eli, York, Pa., (MC), AUS
Eliaser, Maurice, Jr., San Francisco, Calif., (MC), AUS
Fenn, George Kingsley, Beverly, Mass.
Fitzpatrick, Wesley Fenton, Norwalk, Conn.
Foster, Morgan Jacob, Cedar Rapids, Iowa
Freiman, Israel Simon, New York, N. Y., (MC), AUS
Gill, Samuel Lankford, Shreveport, La.
Glomset, Daniel Anders, Rochester, Minn., (MC), AUS
Green, Daniel, Jacksonville, Fla., (MC), AUS
Gross, Paul, Pittsburgh, Pa.
Hagmann, Edward Aloies, Billings, Mont., (MC), AUS
Hall, Snowden Cowman, Jr., Danville, Va., (MC), USNR
Hall, Wendell Charles, Hartford, Conn., (MC), AUS

Hantman, Samuel, Cleveland, Ohio, (MC), AUS
Harrell, George Thomas, Jr., Winston-Salem, N. C.
Hodgson, Corrin Haley, Rochester, Minn.
Hogg, Paul, Newport News, Va.
Holoubek, Joe Edward, New Orleans, La., (MC), AUS
Howard, Richard Philip, Pocatello, Idaho
Hussar, Allen Elemer, Jamaica, N. Y., (MC), AUS
Jeffries, Benjamin, Detroit, Mich., USPHS, (R)
Kaufmann, William, Albany, N. Y.
King, Samuel Joshua, Farmington, N. H.
Kissin, Milton, New York, N. Y., (MC), AUS
Klein, Arthur, Richmond, Va.
Knoepp, Melvin Henry, Pittsburgh, Pa.
MacInnis, Florence Elizabeth, Milwaukee, Wis.
Mark, George Edward, Jr., Philadelphia, Pa.
McBride, John Randall, (MC), USA
McCausland, Alexander, Blacksburg, Va.
McEachern, George Carson, Forest Hills, N. Y., (MC), AUS
Mearin, Robert James, Syracuse, N. Y., (MC), USNR
Mercer, Samuel Robertson, Fort Wayne, Ind.
Meriwether, Lodwick Sterrett, Rochester, Minn., (MC), AUS
Moyers, Waldo Briggs, Hyattsville, Md.
Murray, Clifford Kinnaird, Ventnor, N. J., (MC), USNR
Orenstein, Leo Lawrence, New York, N. Y., (MC), AUS
Petrie, Lester Marshall, Decatur, Ga.
Porter, Robert Trigg, Greeley, Colo., (MC), AUS
Reh, Edward Paul, St. Louis, Mo., (MC), AUS
Riddolls, Wilfrid Elliott, Brantford, Ont., Can., RCAMC
Rike, Paul Miller, Duquesne, Pa.
Romansky, Monroe James, Rochester, N .Y., (MC), AUS
Rosenbaum, Francis Frazier, Ann Arbor, Mich.
Rumsey, John Marshall, San Diego, Calif.
Sahs, Adolph Louis, Iowa City, Iowa
Scarf, Maxwell, Philadelphia, Pa., (MC), AUS
Schwemlein, George Xanthian, Cincinnati, Ohio, USPHS, (R)
Sensenbach, Charles Willis, Winston-Salem, N. C.
Shick, Richard Montgomery, Rochester, Minn., (MC), USNR
Sieracki, Louis Anthony, Norwood, Mass.
Smith, Robert Lee, Jr., Rochester, Minn., (MC), AUS
Spitler, David Kirk, Cleveland, Ohio
Steves, Mervin Franklin, Cincinnati, Ohio, USPHS, (R)
Sussman, Ralph Maurice, New York, N. Y.
Swanson, Leslie William, Mason City, Iowa
Tonning, Daniel Joerstad, St. John, N. B., Can.
Torrey, Eugene Weiss, Perry Point, Md., USVA
Townshend, Wilfred Henry, Jr., Baltimore, Md.
Uhr, Nathaniel, New York, N. Y., (MC), AUS
Vesell, Harry, New York, N. Y.
Vogel, Ernest James, Arlington, Mass., (MC), AUS
Watts, Joseph Cook, Bayside, N. Y., (MC), AUS
Wayburn, Edgar, San Francisco, Calif., (MC), AUS
West, Robert Charnock, Wichita Falls, Tex., (MC), AUS
White, Charles Herman, New Orleans, La.

Whitehouse, Francis Record, Rochester, Minn., (MC), AUS
Williams, Russell Dudley, Monterey, Calif., (MC), AUS

Reinstated to Fellowship

Dr. Henry P. Wright, Montreal, Canada, on application, was reinstated to active Fellowship in the College by the Board of Regents on April 1.

Gifts to the College Library

The following gifts to the College Library of Publications by Members are gratefully acknowledged:

Books

Dr. Johannes M. Nielsen, F.A.C.P., Los Angeles, Calif.—"A Textbook of Clinical Neurology."
Dr. Samuel Weiss, F.A.C.P., New York, N. Y.—"Gallbladder and Bile Ducts."

Reprints

J. Edward Berk, F.A.C.P., Captain, (MC), AUS—1 reprint;
Abraham G. Cohen, Associate, Major, (MC), AUS—2 reprints;
Dr. G. H. Faget, F.A.C.P., U.S.P.H.S.—1 reprint;
Everett E. Hammonds, F.A.C.P., Captain, (MC), AUS—1 reprint;
R. A. Kocher, Associate, Major, (MC), AUS—1 reprint;
Dr. Edward Kupka, F.A.C.P., Los Angeles, Calif.—1 reprint;
Dr. Henry A. Rafsky, F.A.C.P., New York, N. Y.—2 reprints;
Dr. Ramon M. Suarez, F.A.C.P., Santurce, San Juan, Puerto Rico—1 reprint;
J. Shirley Sweeney, F.A.C.P., Lt. Col., (MC), AUS—1 reprint;
Harry Warshawsky, Associate, Major, (MC), AUS—1 reprint;

Among the very interesting reprints received was one from Dr. James B. Herrick, M.A.C.P., Chicago, Ill., entitled, "An Intimate Account of My Early Experience with Coronary Thrombosis."

Invitation by the Royal College of Physicians, London

The Registrar of the Royal College of Physicians, Pall Mall, East, London, S. W. 1, has indicated a desire to extend periodic invitations to members of the American College of Physicians now located in the British Isles to attend the advanced lectures of that College given each month from November to July. Other courtesies will be extended.

Fellows and Associates of the American College of Physicians who desire to be placed on the mailing list for such invitations will kindly communicate their desires to Dr. G. A. Pemberton Wright, F.A.C.P., c/o Mr. Lionel M. Green, 148 Harley Street, London, W. 1. Dr. Wright, who has long been a Fellow of the American College of Physicians, and is regularly located in London, has kindly offered to compile the mailing list and certify it to the Secretary of the Royal College of Physicians. It is important when writing to Dr. Wright to include your mailing address.

Oral Examinations, American Board of Internal Medicine

The oral examinations of the above Board will be held in Chicago, June 8–9–10, 1944, preceding the meeting of the American Medical Association. Closing date for acceptance of applications, May 20, except for candidates from the Armed Forces; every effort to accommodate the latter will be made up to the time of the examinations.

$200,000 Appropriated by U. S. for Placement of Doctors

Surgeon General Thomas Parran, F.A.C.P., recently announced that $200,000 is available to help finance placement of physicians and dentists in communities confronted with an acute shortage of medical manpower. Such placements are made on a three-way agreement among the U. S. Public Health Service, the practitioner and the community needing his services. Doctors or dentists receive $250.00 a month for the first three months, plus some additional funds to defray cost of moving, etc. Any municipality, county or other local subdivision of government may apply to the U. S. Public Health Service for the relocation of a physician or a dentist. The application, however, must be approved by the state health department. It is estimated by Dr. Parran that 600 physicians and dentists will be needed this year in areas where medical facilities have been largely depleted.

Postgraduate Courses by Long Island College of Medicine and the Medical Society of the County of Kings

Through a Joint Committee on Postgraduate Education of the Long Island College of Medicine and the Medical Society of the County of Kings, a program of postgraduate courses has been organized for the Spring of 1944 in various Brooklyn hospitals and institutions. For the most part, these courses are organized for the convenience of local physicians because they consist of one session per week over a varying term of four to fifteen sessions. Subjects included are:

Allergy, under Dr. George A. Merrill, F.A.C.P.; Arthritis, under Dr. A. S. Gordon, F.A.C.P.; Clinical Cardiology, under Dr. William Dressler; Electrocardiography and Clinical Cardiology, under Dr. Charles Shookhoff, F.A.C.P.; Electrocardiography, under Dr. S. R. Slater, F.A.C.P.; Hypertension and Nephritis, under Dr. Harry Mandelbaum, F.A.C.P.; Peripheral Vascular Diseases, under Dr. William S. Collens; Diabetes, under Dr. E. L. Shlevin; Gastro-enterology, under Dr. Benjamin M. Bernstein, F.A.C.P.; Clinical Hematology, under Dr. Maurice Morrison, F.A.C.P.; Endocrine Diseases and Disorders in Children and Adolescents, under Dr. Murray B. Gordon, F.A.C.P.; Female Sex Endocrinology, under Dr. Charles Birnberg; Gynecological Pathology, under Dr. Jacob M. Ravid, Associate; Cardiovascular Roentgenology, under Dr. Bernard S. Epstein.

Dr. Eugene Pendergrass, F.A.C.P., Philadelphia, was recently elected Secretary of the American Society for the Control of Cancer.

Dr. W. E. G. Lancaster, Associate, Fargo, N. D., has been elected President of the Cass County Medical Society.

Dr. Vincent Koch, F.A.C.P., Janesville, Wis., addressed the Rock County (Wisconsin) Medical Society on March 28 on "Newer Therapy in Congestive Heart Disease."

Dr. Edward A. Strecker, F.A.C.P., Philadelphia, War Consultant for the Secretary of War to the Surgeons General of the Army, Army Air Forces and the Navy, has recently returned from a three weeks tour of military hospitals in England. Dr. Strecker reports that our men are receiving splendid personal care and the most expert professional attention. He said there is an adequate amount of medical supplies of all kinds; where men have undergone amputations, they are not discharged until

proper artificial limbs have been obtained; nervous and mental cases are also getting amazing attention for what formerly was termed shellshock, with treatments producing remarkable success. While on his tour, he underwent one of the air raids on London. During the first World War, Dr. Strecker was a Major, psychiatrist for the 28th Division here and overseas. He is now Professor of Psychiatry at the University of Pennsylvania School of Medicine and the Graduate School of Medicine, and Chief of Service at the Institute of the Pennsylvania Hospital.

On March 24, 1944, Dr. Herbert T. Kelly, F.A.C.P., Philadelphia, Chairman of the Committee on Nutrition of the Medical Society of the State of Pennsylvania, presented a paper on "Making Nutrition Education Effective" before the session on Nutrition of the Consumer Education Round Table of the Pennsylvania State Education Association, in connection with Schoolmen's Week at the University of Pennsylvania.

Dr. Joseph Vander Veer, Associate, of Philadelphia, is a lieutenant colonel, Chief of the Medical Service of a Station Hospital in the Southwest Pacific, this being the third year of overseas service for his unit. Colonel Henry M. Thomas, F.A.C.P., formerly of Baltimore, and Lieutenant Colonel Joseph M. Hayman, F.A.C.P., formerly of Cleveland, are medical consultants in adjacent zones.

Dr. Dunne Kirby, F.A.C.P., formerly of Philadelphia, has recently been advanced to Commander in the U. S. Naval Reserve, and is now Chief of the Medical Service at the Naval Hospital at Jacksonville, Fla.

Dr. Benjamin Saslow, F.A.C.P., Newark, N. J., on March 21, 1944, addressed a combined meeting of the Women's Auxiliary of the Essex County Medical Society and the Contemporary Club of Newark on "Wartime Nutrition," the meeting being held at the Academy of Medicine of Northern New Jersey. On April 4, Dr. Saslow addressed the Newark Presbyterian Hospital Staff on "Clinical Experience with Globin Insulin."

Lt. Col. George J. Kastlin, (MC), AUS, Chief of the Medical Service, Bruns General Hospital, Santa Fe, N. M., has reported an eminently successful War-Time Graduate Medical Meeting, lasting for three days, March 29–31, 1944. The audience was primarily military, coming from Colorado, Arizona, Texas and New Mexico. On the program appeared many distinguished authorities from various parts of the country, these being furnished through the central office of the War-Time Graduate Medical Meetings Committee under Captain Edward L. Bortz, (MC), USNR, Philadelphia. The registration was considerably over 300 and the meeting was adjudged locally to be "the best medical meeting ever held here, both from the standpoint of the material presented and the attention and quality of the audience."

War-Time Graduate Medical Meetings

Coming Events

Region No. 1 (Maine, New Hampshire, Vermont, Massachusetts)—Dr. C. S. Keefer, Chairman; Dr. M. C. Sosman, Dr. A. W. Allen.

Rerion No. 2 (Connecticut, Rhode Island)—Dr. S. B. Weld, Chairman; Dr. C. Barker, Dr. A. M. Burgess.

Station Hospital, Dow Field, Bangor, Maine:

May 16—Acute Abdominal Emergencies—Dr. Edward H. Risley.
June 15—The Use of Penicillin and the Sulfa Drugs.

Dispensary, U. S. Naval Air Station, Brunswick, Maine:

May 18—The Pneumonias and Other Respiratory Infections—Dr. Alexander M. Burgess.
June 15—Pilonidal Sinus and Common Diseases of the Anus and Rectum.

Station Hospital, Fort Williams, Portland, Maine:

May 18—Acute Infections of the Central Nervous System.
June 15—Acute Abdominal Emergencies.

Station Hospital, Presque Isle, Maine:

May 18—Fractures of Extremities.
June 15—Burns and Reconstruction Surgery.

Dispensary, U. S. Naval Construction Training Center, Quoddy Village, Maine:

May 18—Tropical Diseases, Including Malaria and Other Insect-Borne Diseases.
June 15—Chest and Abdominal Injuries.

Station Hospital, Grenier Field, Manchester, New Hampshire:

May 17—The Psychoneuroses and Their Management.
June 14—Head, Spine and Nerve Injuries.

U. S. Naval Hospital, Portsmouth, New Hampshire:

May 18—The Skin.
June 15—Joint Injuries—Dr. Ezra A. Jones.

Station Hospital, Fort Banks, Boston, Massachusetts:

May 18—Blood Dyscrasias and Transfusions—Dr. William B. Castle.
June 15—Contagious Diseases and Complications.

U. S. Naval Hospital, Chelsea, Massachusetts:

May 18—Peripheral Vascular Disease.
June 15—Symposium on Physiotherapy.

Station Hospital or Lovell General Hospital, Fort Devens, Massachusetts:

May 18—Contagious Diseases and Complications. (Station)
June 15—Cardiac Neuroses, Cardiac Emergencies and Cardiac Rehabilitation. (Lovell General)

Station Hospital, Camp Edwards, Massachusetts:

May 18—Burns and Reconstruction Surgery.
June 15—The Skin.

Cushing General Hospital, Framingham, Massachusetts:

May 18—Pilonidal Sinus and Common Diseases of the Anus and Rectum.
June 15—Fractures of Extremities.

Station Hospital, Camp Myles Standish, Taunton, Massachusetts:

May 18—Pilonidal Sinus and Common Diseases of the Anus and Rectum.
June 15—Tropical Diseases, Including Malaria and Other Insect-Borne Diseases.

U. S. Marine Hospital, Brighton, Massachusetts:

May 18—Chest and Abdominal Injuries.
June 15—The Psychoneuroses and Their Management.

Station Hospital, Westover Field, Chicopee Falls, Massachusetts:

May 18—Stomach, Biliary Tract and Intestinal Disorders.
June 15—Acute Infections of the Central Nervous System.

Dispensary, U. S. Naval Construction Training Center, Davisville, Rhode Island:

May 18—Cardiac Neuroses, Cardiac Emergencies and Cardiac Rehabilitation—Drs. Samuel A. Levine and T. Duckett Jones.
June 15—Blood Dyscrasias and Transfusions—Dr. William Dameshek.

U. S. Naval Hospital, Newport, Rhode Island:

May 18—Diarrheal Diseases.
June 15—Stomach, Biliary Tract and Intestinal Disorders.

Air Corps Station Hospital, New Haven, Connecticut:

May 18—The Use of Penicillin and the Sulfa Drugs.
June 15—The Pneumonias and Other Respiratory Infections.

Station Hospital, Fort H. G. Wright, Fishers Island, New York:

May 18—Stomach, Biliary Tract and Intestinal Disorders—Dr. John C. Leonard.
June 15—Peripheral Vascular Disease.

Station Hospital, Bradley Field, Windsor Locks, Connecticut:

May 18—Acute Abdominal Emergencies—Dr. Thacher W. Worthen.
June 15—Blood Dyscrasias and Transfusions—Drs. Ralph W. Kendall and Louis P. Hastings.

(The names of those speakers which do not appear on the above schedule are to be announced.)

Region No. 4 (Eastern Pennsylvania, Delaware, New Jersey)—Dr. B. P. Widmann, Chairman; Dr. J. S. Rodman, Dr. S. P. Reimann.

Fort Monmouth, New Jersey:

May 17—Relationship of Pain and Tenderness to Body Mechanics—Dr. John C. Howell.
May 24—Treatment of Burns and the Closure of Surface Defects by Skin Grafts and Flaps—Dr. Hans May.
May 31—Viral Pneumonia—Dr. Hobart Reimann.
June 7—Basic Concepts in the Treatment of Burns—Dr. James Walker.
June 14—Limitations of Fluoroscopy—Dr. W. Edward Chamberlain.

Indiantown Gap, Pennsylvania:

May 17—Blood and Plasma Bank and the Use of Its By-Products—Lieutenant Clifford K. Murray.
May 24—Malignancy as Seen in the Armed Forces—Dr. Stanley Reimann.
May 31—Limitations of Fluoroscopy—Dr. W. Edward Chamberlain.
June 7—Peripheral Nerve Block—Lieutenant Commander Donald Hale.
June 14—Acute Infectious Hepatitis—Dr. Henry J. Tumen.

Philadelphia Naval Hospital, Pennsylvania:

May 26—Limitations of Fluoroscopy—Dr. W. Edward Chamberlain.

Camp Kilmer, New Jersey:

May 29—Water and Solute Balance in Health and Disease—Dr. John Eiman.

Region No. 5 (Maryland, District of Columbia, Virginia, West Virginia)—Dr. J. A. Lyon, Chairman; Dr. C. R. Edwards, Dr. G. L. Weller.

U. S. Naval Hospital and U. S. Naval Academy Dispensary, Annapolis, Maryland:

May 19—The Pneumonias and Other Respiratory Infections—Dr. Luther L. Terry.

Fort Eustis, Virginia:

May 25—Anesthesia—Selection and Contraindications—Captain James P. Curran.*

Camp Lee, Virginia:

May 19—Traumatic Surgery of the Abdomen—Dr. Frank S. Johns.
May 26—Modern Diagnosis and Treatment of Pulmonary Tuberculosis—Dr. A. Barklie Coulter.
June 2—Aviation Medicine, General—Dr. Ludwig Lederer.

Langley Field, Virginia:

May 16—Traumatic Arthritis—Lieutenant Commander Judson D. Wilson.*
May 23—Rheumatism—Major Terence Lloyd Tyson.*
May 30—Traumatic Surgery of the Abdomen—Dr. Robert L. Payne.*
June 6—Modern Diagnosis and Treatment of Pulmonary Tuberculosis—Dr. Dean B. Cole.*
June 13—Respiratory Diseases and Their Modern Treatment—Dr. Porter P. Vinson.*

Fort George G. Meade, Maryland:

May 19—General Discussion of Psychosomatic Medicine—Dr. John Whitehorn.*
May 26—Bronchiectasis—Dr. Edgar W. Davis.
June 2—Acute Rheumatic Fever—Dr. Wallace M. Yater.*

Norfolk Naval Hospital, Portsmouth, Virginia:

May 25—Drainage of the Pleura with Particular Relation to Chest Injuries—Dr. I. A. Bigger.*

Newton D. Baker General Hospital, Martinsburg, West Virginia:

May 15—Psychosomatic Medicine—Dr. Jacob H. Conn.*
May 22—Shock—Dr. C. Martin Rhode.*
May 29—Prevention and Treatment of Wound Infections with Sulfonamides—Dr. Warfield M. Firor.*

Dr. Roy Kracke, heretofore Professor of Pathology and Bacteriology at Emory University School of Medicine, Atlanta, Ga., has been appointed the Dean of the new Medical College of Alabama at Birmingham. Dr. Stuart Graves, F.A.C.P., Dean of the University of Alabama School of Medicine at University, will continue as Dean during the transition period of the development of the two-year school into a four-year college.

*At the time of publication these names have not been verified in the Central Office. However, the dates and subjects are definite.

Joseph A. Capps Prize

Dr. Joseph A. Capps, F.A.C.P., Chicago, Ill., established the Joseph A. Capps Prize of the Institute of Medicine of Chicago, some time in the past, consisting of $400.00 award for the most meritorious investigative work in the specialties of medicine or in the fundamental sciences, providing the work has a definite bearing on some medical problem.

No award was made for 1943. Competition is open, however, for manuscripts to be submitted to the secretary of the Institute, 86 East Randolph Street, Chicago, before the end of 1944. Competition is restricted to graduates of Chicago medical schools who have completed their internships or one year of laboratory work during or since 1942.

Dr. T. Grier Miller, F.A.C.P., Professor of Clinical Medicine, University of Pennsylvania School of Medicine, Philadelphia, will deliver the twentieth Lewis Linn McArthur Lecture of the Frank Billings Foundation, Institute of Medicine, Chicago, May 26, his lecture being entitled "Observations on the Human Digestive Tract by Intubation."

Dr. Eugene M. Landis, F.A.C.P., Higginson Professor of Physiology, Harvard Medical School, Boston, on April 14, delivered the fourth annual Phi Delta Epsilon Honor Lecture at the University of Pennsylvania School of Medicine, "A Comparison of the Clinical Tests of Kidney Function."

Under the presidency of Dr. D. Slater Lewis, F.A.C.P., Montreal, Quebec, the Canadian Medical Association will hold its 75th annual meeting at the Royal York Hotel, Toronto, May 22–26, 1944.

Under the presidency of Dr. Fred Wilkerson, F.A.C.P., Montgomery, the Medical Association of the State of Alabama held its annual meeting at Montgomery, April 18–20. Among guest speakers were the following:

Walter O. Klingman, F.A.C.P., Lt. Col., (MC), AUS—"Psychiatric Problems in Flying Personnel";

Dr. Randolph Lyons, F.A.C.P., New Orleans—"The Schemm Treatment of Chronic Heart Failure with Edema."

The 93rd annual session of the Iowa State Medical Society was held April 20–21, 1944, under the presidency of Dr. Lee R. Woodward, F.A.C.P., Mason City. Among the guest speakers was Dr. Anton J. Carlson, F.A.C.P., Chicago, "Physiologic Aspects of Cardiac Disease."

Lt. Chauncey L. Royster (Associate), (MC), AUS, formerly of Raleigh, N. C., recently was selected as the first recipient of the James R. Lisa (F.A.C.P.) Award of the Society of the Alumni of New York City Hospital. Lt. Royster received the award in recognition of his work on cardiac findings in syphilis combined with hypertension, in the absence of aortic regurgitation. The award consists of a medallion and an honorarium.

American Academy of Allergy recently announced that that society will make two annual awards: One, the Abbott Award, $200.00 annually, established by the

Abbott Laboratories of Chicago "for the most important advancement in the field of allergy or for the development of a research problem on any phase of the subject," open to members and non-members of the society; two, the Secretary's Prize, a medal to be given annually to a member of the Academy for "the most outstanding achievement of the year in the general field of allergy."

Dr. Carl R. Howson, F.A.C.P., Los Angeles, Medical Director of the La Vina Sanatorium, has been named the first Medical Director of the Charles Cook Hastings Home. The establishment of the home was provided in the will of the late Charles H. Hastings, and is a project for research into the cause and cure of tuberculosis and other diseases. The new institution will be built on a seven-acre tract of land purchased from the La Vina Sanatorium, near Pasadena.

Dr. Willard C. Rappleye, F.A.C.P., Dean of Columbia University College of Physicians and Surgeons, has been re-elected Chairman of the Research Council of the Department of Hospitals of New York City. Dr. Walter G. Lough, F.A.C.P., President of the Medical Board of Goldwater Memorial Hospital, was elected secretary. The Research Council of the Department of Hospitals was set up by Dr. S. S. Goldwater while Commissioner of Hospitals, for the study of chronic disease. There is a research unit at Columbia University and at New York University. City funds for the Research Council have been augmented by grants by the late Lucius N. Littauer, Marshall Field, the Rockefeller Foundation, Metropolitan Life Insurance Company and others.

Dr. Harold Swanberg, F.A.C.P., Quincy, Ill., has initiated the Swanberg Medical Foundation, an irrevocable trust, organized not for pecuniary profit, that will eventually enable the Adams County Medical Society "to sponsor or undertake one or more things of a charitable, scientific, literary or educational nature, that would not be possible, or would be difficult to undertake without the financial aid of the Foundations and which will bring public and professional honor and respect to the medical profession." Contributions may be made also to the fund by any individual. The principal of the fund shall be held intact and invested in approved securities. Not more than 80 per cent of the income may be expended annually, and no project shall be sponsored until the fund exceeds $10,000.

A Fellow of the American College of Physicians, located in Mexico City, has offered his services, because of the medical shortage in the United States, to any school of medicine desiring to fill a vacancy in the teaching staff in the field of gastro-enterology and allied subjects. The offer is for the duration of the War. Any one interested in obtaining more details concerning his qualifications and interests may communicate with the Executive Offices of the College, 4200 Pine Street, Philadelphia 4, Pa.

OBITUARIES

DR. R. GARFIELD SNYDER

Dr. R. Garfield Snyder, of New York, N. Y., was born in Thamesville, Ontario, in 1881. He received his Bachelor of Medicine Degree in 1904, University of Toronto Faculty of Medicine. From 1908 to 1911, he served as Assistant Pathologist, Russell Sage Institute of Pathology, and from 1911 to 1925 he was on the staff as Assistant Attending and Attending Physician to the City Hospital of New York. For many years, he was Chief of the Arthritis Clinic of the New York Society for the Relief of the Ruptured and Crippled and Attending Physician and Professor of Medicine at the New York Polyclinic Medical School and Hospital. At one time he was Assistant Professor of Clinical Medicine at Columbia University College of Physicians and Surgeons. He was also Consultant in Arthritis to the New Rochelle, St. Agnes (White Plains) and Jamaica Hospitals.

Dr. Snyder was a member of the Medical Society of the County of New York, New York State Medical Association and the American Rheumatism Society. He was a Fellow of the American Medical Association, the New York Academy of Medicine and had been a Fellow of the American College of Physicians since 1935. He was also a diplomate of the American Board of Internal Medicine. Dr. Snyder died February 25, 1944, of gastric ulcer, at the age of 63.

ASA L. LINCOLN, M.D., F.A.C.P.,
Governor for Eastern New York

DR. ROSCOE H. BEESON

Dr. Roscoe H. Beeson, of Muncie, Indiana, died March 30, 1944, at the age of fifty-three. Dr. Beeson was very active in the field of internal medicine. He served in World War I in the Medical Corps under General Gorgas. He was a member of the American Board for Internal Medicine, an Ex-Governor of the American College of Physicians, and a Fellow since 1926. He was also a member of the Delaware County Medical Society, the Indiana State Medical Association, and a Fellow of the American Medical Association.

ROBERT M. MOORE, F.A.C.P.,
Governor for Indiana

PROCEEDINGS, EXECUTIVE SESSION OF THE BOARD OF REGENTS AND THE BOARD OF GOVERNORS

CHICAGO, ILL.

APRIL 1, 1944

A combined executive session of the Board of Regents and of the Board of Governors of the American College of Physicians, held at the Palmer House, Chicago, Ill., April 1, 1944, convened at 9:40 o'clock, with President James E. Paullin presiding.

President Paullin called the meeting to order and requested the Secretary, Mr. E. R. Loveland, to call the roll, which was recorded as follows:

	OFFICERS	
President	James E. Paullin	Present
President-Elect	Ernest E. Irons	Present
First Vice President	Charles H. Cocke	Present
Second Vice President	Henry R. Carstens	Absent
Third Vice President	A. C. Griffith	Present
Treasurer	William D. Stroud	Present
Secretary-General	George Morris Piersol	Present
Executive Secretary	E. R. Loveland	Present
	REGENTS	
	David P. Barr	Present
	J. Morrison Hutcheson	Present
	Walter W. Palmer	Present
	O. H. Perry Pepper	Present
	Gerald B. Webb	Absent
	James D. Bruce	Present
	T. Homer Coffen	Present
	Jonathan C. Meakins	Absent
	Hugh J. Morgan	Present
	Charles F. Tenney	Present
	Francis G. Blake	Present
	James F. Churchill	Present
	Reginald Fitz	Present
	Roger I. Lee	Absent
	Charles T. Stone	Present
	Paul W. Clough	Present
	William B. Breed	Present
	GOVERNORS	
MISSISSIPPI	John G. Archer	Present
HAWAII	Harry L. Arnold	Absent
NORTH DAKOTA	Julius O. Arnson	Present
WASHINGTON	Edwin G. Bannick, *Acting*	Present
PENNSYLVANIA (Eastern)	Edward L. Bortz	Present
MASSACHUSETTS	William B. Breed	Present
OHIO	A. B. Brower	Present
NEW MEXICO	Robert O. Brown	Present
RHODE ISLAND	Alex. M. Burgess	Present

South Dakota	John L. Calene	Present
Florida	Turner Z. Cason	Present
Tennessee	William C. Chaney	Present
Kentucky	C. W. Dowden	Present
California (Northern)	Ernest H. Falconer	Present
Maritime Provinces	Hugh A. Farris	Present
Delaware	Lewis B. Flinn	Present
Maryland	Wetherbee Fort, *Acting*	Present
New Hampshire	Harry T. French	Present
Georgia	Glenville Giddings	Present
Maine	Richard S. Hawkes, *Acting*	Present
Montana	Ernest D. Hitchcock	Present
Arizona	Fred G. Holmes	Absent
Louisiana	Edgar Hull	Present
Illinois (Southern)	Cecil M. Jack	Present
Vermont	E. E. Johnston, *Alternate*	Present
Kansas	Harold H. Jones	Present
South Carolina	William H. Kelley, *Alternate*	Present
Missouri	Ralph Kinsella	Present
New Jersey	George H. Lathrope	Present
Michigan	P. L. Ledwidge, *Acting*	Present
Texas	M. D. Levy	Present
Ontario	Warren S. Lyman	Absent
United States Navy	Ross T. McIntire	Absent
Arkansas	Oliver C. Melson	Present
Mexico	Francisco de P. Miranda	Absent
Quebec	Charles F. Moffatt	Present
Indiana	Robert M. Moore	Present
United States Army	Hugh J. Morgan, *Alternate*	Present
United States Public Health Service	Thomas Parran	Present
Nevada	Lawrence Parsons	Present
Idaho	Samuel M. Poindexter, *Acting*	Present
Oklahoma	Leander A. Riely	Present
Oregon	Homer P. Rush	Present
New York (Western)	Nelson G. Russell, Sr.	Present
Minnesota	Edward H. Rynearson, *Acting*	Present
Pennsylvania (Western)	L. D. Sargent, *Alternate*	Present
Wisconsin	Elmer L. Sevringhaus	Present
Illinois (Northern)	LeRoy H. Sloan	Present
Republic of Panama and Canal Zone	Gilbert M. Stevenson	Absent
Alberta, British Columbia, Manitoba, Saskatchewan	George F. Strong	Present
New York (Eastern)	Charles F. Tenney, *Alternate*	Present
California (Southern)	Roy E. Thomas	Present
Nebraska	Warren Thompson	Present
Connecticut	Charles H. Turkington	Present
West Virginia	Walter E. Vest	Present
Utah	Louis E. Viko	Present
Colorado	James J. Waring	Present
North Carolina	Paul F. Whitaker	Present

ALABAMA	Fred W. Wilkerson	Present
IOWA	Benjamin F. Wolverton	Present
VIRGINIA	J. Edwin Wood, Jr., *Acting*	Absent
DISTRICT OF COLUMBIA	Wallace M. Yater	Present
PUERTO RICO	Wallace M. Yater, *Alternate*	Present

PRESIDENT PAULLIN: Mr. Secretary, will you read abstracted Minutes of the last meetings?

. . . Executive Secretary Loveland read abstracted Minutes of the last meetings of the Board of Regents and of the Board of Governors; there were no corrections and were approved as read. . . .

PRESIDENT PAULLIN: It affords me a great deal of pleasure to tell you that the Secretary has just announced that this is the largest gathering of Governors of the College that we have had at one time. Will the Secretary kindly present the communications?

EXECUTIVE SECRETARY LOVELAND: The first communication is from the Board of Regents, being an interpretation upon the effect of the College not holding an Annual Business Meeting in 1943.

. . . Mr. Loveland read the interpretation of resolution which provided that in the absence of an Annual Business Meeting in 1943, the term of office of all Officers, Regents, Governors and Committeemen would automatically be extended one year beyond the originally designated expiration date, this applying also to appointees by the American College of Physicians on the American Board of Internal Medicine. . . .

MR. LOVELAND (Continuing): The next communication is from Brigadier Jonathan C. Meakins, expressing his regret at being unable to attend because of military duties and announcing his being in favor of making requirements for membership the same for medical officers in the Armed Forces, whether on temporary or permanent active duty; also announcing his being in favor of making certification by a specialty board a prerequisite for Associateship and the setting of no time limit on when an Associate may be elevated to Fellowship.

The next communication is from Major Francis C. Wood, F.A.C.P., asking consideration of the advisability of appointing a regional director of the College in India, to administer affairs of the College and to maintain a center for the dissemination of information about the College, especially because there are so many members now on active duty in that region.

The next communication is to record and to report that President Paullin has appointed Dr. Wallace M. Yater, of Washington, D. C., to be the official representative of the American College of Physicians in the Division of Medical Sciences of the National Research Council, to succeed Dr. O. H. Perry Pepper, for a term of three years, beginning July 1, 1944, this appointment having been necessitated by the regulation that previous representatives are not eligible for reëlection.

Other communications have been received from members of the Board of Regents and of the Board of Governors who are unable to be present at this time.

PRESIDENT PAULLIN: That ends the communications that have been addressed to the Board. Next is the report of the Secretary-General, Dr. George Morris Piersol.

SECRETARY-GENERAL PIERSOL: Mr. President, Regents and Governors: we herewith report the deaths of 14 Fellows and 2 Associates since the last meeting of the Board of Regents, as follows:

Fellows

Bullowa, Jesse Godfrey	New York, N. Y.	November 9, 1943
Burr, Charles Walts	Philadelphia, Pa.	February 19, 1944

Harris, Seale, Jr.	Birmingham, Ala.	December 22, 1943
Hill, Roy Albert	Thomasville, Ga.	January 1, 1944
Horger, Eugene Leroy	Columbia, S. C.	October 22, 1943
Hutchison, George M.	Ridgway, Pa.	January 5, 1944
Larkin, Albert E.	Syracuse, N. Y.	November 2, 1943
Martin, Charles Wesley	Woodmere, N. Y.	November 16, 1943
Mebane, Douglas H.	San Antonio, Tex.	November 12, 1943
Rinker, Frederick C.	Norfolk, Va.	November 15, 1943
Snyder, R. Garfield	New York, N. Y.	February 25, 1944
Tyler, Albert F.	Omaha, Nebr.	February 25, 1944
Ward, James Alto	Birmingham, Ala.	November 11, 1943
Wilson, Franklin Davis	Norfolk, Va.	November 17, 1943

Associates

Berman, Harry Solomon	Detroit, Mich.	February 16, 1944
Miller, Harry Dudley, Jr.	Shelbyville, Ind.	February 2, 1944

Also, since the last meeting of the Board of Regents, 78 additional Life Members have been added to the Roster, making a grand total of 298 Life Members, of whom 25 are deceased, leaving a balance of 273. The new Life Members are as follows:

Raymond Sands	Santa Monica, Calif.
Emry G. Hyatt	Tulsa, Okla.
Paul F. Stookey	Kansas City, Mo.
Leonard Henry Fredricks	Bismarck, N. D.
Lucius Emmett Madden	Columbia, S. C.
Lester Avant Crowell, Jr.	Lincolnton, N. C.
John J. Andujar	Fort Worth, Tex.
Donald E. H. Cleveland	Vancouver, B. C., Canada
Francesco N. Carbone	Orange, N. J.
John F. Kenney	Pawtucket, R. I.
Samuel A. Levine	Boston, Mass.
Richard N. DeNiord	Buffalo, N. Y.
Henry Pleasants, Jr.	West Chester, Pa.
E. Henry Jones	Youngstown, Ohio
Bruce K. Wiseman	Columbus, Ohio
Frederick W. Mulsow	Cedar Rapids, Iowa
Olga S. Hansen	Minneapolis, Minn.
J. Webster Merritt	Jacksonville, Fla.
F. Erwin Tracy	Middletown, Conn.
Hal M. Davison	Atlanta, Ga.
Sidney A. Slater	Worthington, Minn.
Wilson Alex. Myers	Kansas City, Mo.
Francis M. Rackemann	Boston, Mass.
Cecil Overton Patterson	Dallas, Tex.
George H. Lathrope	Newark, N. J.
Earl D. Skeen	Gary, Ind.
Fred C. Oldenburg	Cleveland, Ohio
George W. Covey	Lincoln, Nebr.
George L. Cook	Tampa, Fla.
August A. Werner	St. Louis, Mo.
Earl Jones	Alexandria, La.
Charles LeRoy Steinberg	Rochester, N. Y.

Alonzo Blaine Brower	Dayton, Ohio
Edwin W. Gates	Niagara Falls, N. Y.
Hilmar O. Koefod	Santa Barbara, Calif.
M. William Clift	Flint, Mich.
I. C. Brill	Portland, Ore.
Morrill L. Ilsley	Claremont, Calif.
T. Grier Miller	Philadelphia, Pa.
Martin E. Rehfuss	Ardmore, Pa.
James W. Vernon	Morganton, N. C.
Curtis F. Garvin	Cleveland, Ohio
Lee Roy Woodward	Mason City, Iowa
Leslie Hall Redelings	San Diego, Calif.
Michael Vinciguerra	Elizabeth, N. J.
Joseph Joel Labow	Elizabeth, N. J.
Mathew Jay Flipse	Miami, Fla.
George F. Stoney	Erie, Pa.
Edward Wyatt Cannady	East St. Louis, Ill.
W. Warner Watkins	Phoenix, Ariz.
Calvus Elton Richards	Gallipolis, Ohio
Edward W. Bixby	Wilkes-Barre, Pa.
C. C. McLean	Birmingham, Ala.
Herman P. Gunnar	Berwyn, Ill.
Richard E. Knapp	Hackensack, N. J.
James H. Agnew	Houston, Tex.
Ramon M. Suarez	Santurce, P. R.
Harry B. Thomas	York, Pa.
Francis R. Wise	York, Pa.
Julius H. Comroe, Sr.	York, Pa.
Daniel Vincent Conwell	Wichita, Kan.
Harold Swanberg	Quincy, Ill.
R. R. Snowden	Pittsburgh, Pa.
W. E. R. Schottstaedt	Fresno, Calif.
Norman S. Skinner	St. John, N. B., Canada
J. D. Loudon	Toronto, Ont., Canada
Eugene P. Pendergrass	Philadelphia, Pa.
Harry D. Piercy	Cleveland, Ohio
Lewis J. Moorman	Oklahoma City, Okla.
John T. Sample	Saginaw, Mich.
Joseph T. Martin	Oklahoma City, Okla.
Mason I. Lowance	Atlanta, Ga.
David A. Cooper	Philadelphia, Pa.
Merle M. Miller	Philadelphia, Pa.
Constantine F. Kemper	Denver, Colo.
Abel A. Applebaum	Toledo, Ohio
Merrill W. Hollingsworth	Santa Ana, Calif.
Augustus Philip Munsch	St. Louis, Mo.

PRESIDENT PAULLIN: Gentlemen, you have heard the report of the Secretary-General, which will be filed and published in the ANNALS. We now pass to new business and reports. First is the report of the Committee on Credentials, of which Dr. Piersol is Chairman.

DR. PIERSOL: At a meeting of the Committee on Credentials, March 12, 1944, the Executive Secretary and the Chairman of the Committee, respectively, were

requested to prepare a resolution to be offered to the Board of Regents at Chicago on April 1, 1944, as follows:

RESOLVED, the Committee on Credentials, after consideration and experience with candidates, believes that Medical Officers of the Army and Navy and the Public Health Service should meet the same requirements (with regard to certification) for Fellowship as other candidates; to wit: "He shall present satisfactory evidence of certification by the national board of certification in his particular field, where such a Board exists."

To that end, the Committee recommends to the Board of Regents the revision of the second sentence from the requirements for Fellowship, as adopted by the Board of Regents on April 6, 1940 (page 7, "e", of the booklet of requirements) to read:

"This regulation, however, shall not apply to candidates who were elected Associates prior to April 6, 1940, nor to candidates from the Army, Navy and Public Health Services who were elected prior to and including April 1, 1944."

It may be pointed out that this will not subject candidates to certification inside or outside of the Services who are engaged wholly in specialties for which there is no certifying board.

The Committee further recommends that the first sentence of the footnote at the bottom of page 11 of the booklet of requirements shall be revised to read:

"Candidates from the regular (not reserve) Medical Corps of the Army, Navy and Public Health Services shall be endorsed by the Surgeon General of each Service."

It is the opinion of the Committee on Credentials that it should not be necessary that the Surgeon General be the sole sponsor of candidates from his Service.

GENERAL HUGH J. MORGAN: I move approval.

DR. A. C. GRIFFITH: I second the motion.

PRESIDENT PAULLIN: It has been moved and seconded that this recommendation of the Committee on Credentials be adopted. Is there discussion? The privileges of the floor are extended to the members of the Board of Governors, should they desire to discuss this recommendation.

DR. REGINALD FITZ: May I ask the significance of "shall be endorsed by the Surgeon General of each Service"?

DR. PIERSOL: Heretofore all members of the regular Army, Navy and Public Health Service have had to be proposed by the Surgeons General without necessary sponsors from other sources. It is still proposed that any candidate coming up from one of those Services shall be endorsed by the Surgeon General of that Service, since he occupies the position as a Governor of the College for his Service, but that the proposal otherwise shall be handled the same as for any other candidate, signed by a proposer and a seconder before being endorsed by the Surgeon General. In the past not only has the Surgeon General virtually become the sole person to decide who shall be proposed from his Service, but such candidates enjoyed a certain immunity from some of the requirements. For instance, he was excused from certification, as an illustration. The plan worked well enough when the Army, Navy and Public Health Service were small organizations and when in all likelihood the Surgeon General had a fairly intimate knowledge of the merits of all of his outstanding officers. In the last few years these Services have been augmented by thousands of men from civilian life. At present a situation has arisen which is causing some criticism and working an obvious injustice upon reserve officers on active duty. Men in the regular Army or Navy are not subjected to certification, whereas reserve officers on active duty are still subject to the certification rule. This has given rise, and I think with considerable justice, to criticism and a feeling on the part of many

that they are being unduly and unjustly discriminated against, particularly because they have no assurances they are not going to be in the Army or Navy for a long time to come. On the whole, the Committee, after many years of experience and a great deal of argument, finally came to the conclusion that it could see no good reason why an accredited, competent Army or Navy medical officer should not make the same effort to be certified and to do the same things as any other medical man to qualify for Fellowship in this College.

GENERAL MORGAN: I would suggest that since one of the Surgeons General is here, we would like to hear from Dr. Parran.

SURGEON GENERAL THOMAS PARRAN: Speaking on behalf of the Public Health Service, we support the proposed amendment. It is not clear to me whether, if an officer of the regular corps is proposed by some person other than the Surgeon General, the approval of the Surgeon General of such proposal is required?

PRESIDENT PAULLIN: May I state that all of the Surgeons General are Governors of the College, and they must, of necessity, approve the proposal before it goes through. It would not be accepted unless the Governor of the College has approved it.

DR. OLIVER C. MELSON: I would like to ask if this rule can be made to apply to the Veterans Administration too.

DR. PIERSOL: The Veterans Administration has never come under the same heading. Heretofore, and at present, medical officers in the Veterans Administration are subjected exactly to the same regulations and have to comply with the same criteria as any ordinary physician. This special rule applied only in the case of Army, Navy and Public Health Service, where there was commissioned personnel. The Veterans Administration is not commissioned. All appointees to the medical department of the Veterans Administration come through Civil Service.

DR. GLENVILLE GIDDINGS: Is it significant that there is no certification board for public health?

PRESIDENT PAULLIN: Dr. Parran, is there no certification board for those in the Public Health Service?

SURGEON GENERAL PARRAN: Our personnel division acts as a certifying board.

PRESIDENT PAULLIN: I will now call for a vote on this amendment by the Board of Regents.

. . . The change was unanimously approved. . . .

PRESIDENT PAULLIN: Dr. Piersol, will you proceed with your report?

DR. PIERSOL: The Committee on Credentials recommends to the Board of Regents that the admission requirements promulgated by the Board of Regents be revised, providing that certification shall be a prerequisite for Associateship, and that the Committee be authorized to make the necessary revision in the wording of the regulations to effect this.

The Committee suggests that in stating the requirements for advancement to Fellowship, if the above change is made, emphasis be placed on the following points: (1) institutional appointments and advancements; (2) academic appointments and advancements; (3) postgraduate training; (4) theses; (5) publications in acceptable journals.

The recommendation embodied in the paragraph immediately above was added, because it would be a natural question to ask, if certification shall be a prerequisite for Associateship, what other criteria shall be applied for advancement to Fellowship. This outline gives in a general way the feeling of the Committee on Credentials and the matters into which they look when they are considering the advancement of an Associate to Fellowship.

DR. VEST: Would you still have the same time limit on advancement to Fellowship, five years?

DR. PIERSOL: Yes.

DR. FRANCIS G. BLAKE: Has the Committee given consideration to the suggestion from Brigadier Meakins, that the period of Associateship shall not be limited?

DR. PIERSOL: No. This communication read this morning is the first time the Committee has heard Brigadier Meakins' suggestion.

DR. BLAKE: I consider it a valuable suggestion, which should be given consideration.

DR. WALTER W. PALMER: I should like to second Dr. Blake's remarks, particularly since it is proposed to make advancement in the academic field one of the requirements for advancement from Associateship to Fellowship. Many of you realize it is not always possible to advance a man within a period of five years. He may be perfectly worthy of it, but there are often certain obstacles in academic tradition and rules.

DR. EDGAR HULL: I should like to go on record as personally opposing this change in requirements for admission to Associateship. To me it looks as though this is turning certification around. Certainly certification should be a prerequisite for Fellowship; I doubt very much if it should be a prerequisite for Associateship. For one thing, I think it would increase the age at which men are eligible.

PRESIDENT PAULLIN: The Chair rules there is no motion before the house. Will someone make a motion?

DR. CHARLES F. TENNEY: I move the adoption of this proposal by the Credentials Committee.

DR. CHARLES H. COCKE: I second it.

PRESIDENT PAULLIN: The matter is now fully open for discussion.

DR. VEST: As a member of the Board of Governors I certainly would hesitate to place certification as a prerequisite for Associateship. If it should be done, I should certainly want to see the time limit on Associateship extended to ten years, instead of five.

DR. BLAKE: I should like to see any time limit removed from the period of Associateship. This resolution does not provide that.

DR. M. D. LEVY: I am wondering what ruling will be made for the Board on these accelerated internships, assistant residencies and residencies, now in vogue, as qualifications for admission to board examinations. At the present time men on this accelerated program are not complying with the general rules.

PRESIDENT PAULLIN: Dr. Irons, would you like to answer Dr. Levy's question?

DR. ERNEST E. IRONS: That question has been discussed by the Board of Internal Medicine. So far as the internship is concerned, the Board is perfectly willing to accept nine months plus the indoctrination internship of three months, which the Army gives its men, and under rather similar procedure in the Navy. After the internship period is over, at which time the candidate comes in the purview of the Board, the Board is inclined to weigh his qualifications on what he has done, irrespective of the 9-9-9. That is, if he has had nine months of residency, then that counts as nine months of the required two or three years of residency, or whatever other preparation he submits for qualification.

I might say that the suggestions by the Board that the prospective candidate shall take two years of residency, or a year or so in one of the basic sciences, are made entirely for the protection of the candidate. We want to prevent the young man from being taken up in a high mountain by someone who gives him an inferior opportunity; then after five years, when the golden period is over for this young man, he finds that his preparation has not been adequate. That is the sole reason for the American Board of Internal Medicine to make suggestions which shall be applied in the admission of candidates to examination. We examine many men who do not have these specific qualifications, for they graduated years before the American Board was ever thought of. The Board is perfectly willing to examine a man who has never been

inside of a university since his graduation, providing the things that have happened to him have been such as have promoted his growth in medicine to a point where he can pass the examination.

DR. TENNEY: Going back to my motion, I think it would be a very good thing to adopt it; in talking with Governor Lincoln, of Eastern New York, these candidates who are seeking Associateship are, in many instances, already certified. I think such a requirement can be easily complied with.

DR. A. B. BROWER: It has been my feeling in the past that these young men should be encouraged to seek certification before coming up for Associateship. The majority of these candidates are in much better position and much better prepared to complete certification than they will be four or five years hence, after they have been out of school a longer time and have become rusty in their basic science. It is a distinct advantage to the Governors, in trying to find out as much as possible about candidates for Associateship, to learn first if they have been certified. If certification has been attained, it makes it much easier for the Governor to decide whether the candidate should be recommended.

DR. LEWIS B. FLINN: I should like to ask the Credentials Committee if this suggestion is passed (and I think in the long view it is a good one), when will it go into effect? There are at present a great many individuals who have not yet been certified, but who are in the process of applying for Associateship. If this change is made, I feel that it would be much better to make the date effective sometime in the future, so that those presently involved can make their adjustments.

DR. GRIFFITH: Mr. Chairman, can a student in college take the examination for certification?

DR. IRONS: No sir. He cannot apply for examination until five years have elapsed from the completion of his first one-year internship.

DR. JAMES F. CHURCHILL: There would certainly be a lag in the application of men for Associateship, if this is enacted. How long a delay would this probably cause in men applying for Associateship?

DR. PIERSOL: At present a candidate can come up for Associateship three years after graduation. The adoption of this rule would automatically make it obligatory for every candidate to wait five or six years—until he had been admitted to and had passed the examinations of his Board. The lag would be from two to three years.

DR. WALLACE M. YATER: In that connection, it may be interesting to note that a great many candidates have already been certified before they become Associates. Approximately 60 per cent of those elected to Associateship today are certified.

DR. PIERSOL: I do not think the average is quite that high. If the maximum term of Associateship shall be changed from the present five-year term, it would be necessary to amend the By-Laws. The other parts of the regulations are such that the Regents have a right to adopt them. Under the Constitution, Article IV, Section (a), the Board of Regents is definitely authorized to designate without writing into the Constitution and By-Laws additional rules governing requirements—"Fellows . . . who shall have been elected in accordance with the By-Laws and such additional rules as the Board of Regents may from time to time adopt."

The rules we are discussing were adopted in 1940 by the Board of Regents. They are not By-Laws. Therefore, the Board of Regents can change them.

DR. HULL: I want to refer again to the question of the length of time required before a man could become a Fellow of the College. Five years after a one-year internship he can take the examination of the Board. About one year later, if he passes the Board, he will be certified. That is six years after completion of internship, or seven years after graduation. Then according to our present By-Laws, he must serve as an Associate for at least three years. That would be a minimum time of ten years after graduation before a man could possibly become a Fellow of the

College. In most instances, it would take a year or two longer, and I personally think that that is too long.

DR. TENNEY: It takes that long to make an internist.

DR. ROBERT M. MOORE: This may seem a little hard on some of these candidates, but I am strongly for it. If you will take the average, there will be eight or nine Associates who will procrastinate until the five years are up, and then finally make out the proposal for Fellowship and refer to "being in the process of taking the Board examinations." The adoption of this change would settle the question once and for all. If they are going to be medical men, they should know it and start early.

DR. FITZ: From this discussion I take it the purpose of the College henceforward is to feel that specialism in medicine is one essential credential for admission; that is, no matter what may happen in the future, we now believe that a man who happens to want to be nothing more than a good general practitioner, and may become a very distinguished one, will not be eligible, or that a man who happens to go into public health work, for which there is no specialty board, will again be automatically excluded, if it shall now be our policy to limit membership only to qualified specialists. Am I correct in my interpretation?

PRESIDENT PAULLIN: I would rule that you are incorrect, Dr. Fitz, in that a man may become a member of the College without certification, providing there is no such board to certify him in his particular specialty. Public Health men may be eligible, even though there is no specialty board for them.

DR. PIERSOL: You are quite correct. The regulations distinctly state that where no board of certification exists, the certification rule, naturally, cannot apply. This, however, does not interfere with the right of the Credentials Committee to recommend to the Regents for direct Fellowship certain outstanding candidates who by reason of their scientific attainment, teaching positions and other exceptional qualifications, are suitable for such special recognition. It would, however, as Dr. Fitz suggested, exclude any doctor whose sole qualification is that of an outstanding citizen and a good general practitioner, unless he should see fit to attain certification in one of the specialties.

The Board of Regents has full authority to institute the changes in the requirements for Associateship, but it does not have the authority to remove the five-year limitation on the Associate term. Such a change would entail revision of the Constitution and By-Laws, and would have to be proposed in writing in advance of the next Annual Business Meeting of the College.

DR. VEST: May I ask, Dr. Piersol, what would be your advice about changing the Associate term from the present maximum of five years, if certification is made a prerequisite for Associateship.

DR. PIERSOL: Under such circumstances, I believe the five-year limit might be entirely eliminated, or, perhaps, considerably extended.

DR. HULL: Associateship in the College has a very definite inspirational value to a young man preparing to become an internist. I think this would be lost for the relatively young man, for he would be too far removed from membership in the College.

DR. NELSON G. RUSSELL, SR.: Dr. Hull has just said what I wanted to say. The College contributes a great deal towards aiding these young men in following the right course. If they can get started two or three years after their internships and take advantage of the instruction that is offered them by the College, as a guide, it proves a great advantage.

DR. P. L. LEDWIDGE: If these two proposed changes are adopted, that is, certification as a prerequisite for Associateship and the removal of a time limit to qualify for Fellowship, would it not tend toward giving us a great many permanent Associates and relatively fewer Fellows?

DR. YATER: I would like to comment on this motion, both as a Governor and as a member of the Credentials Committee. It has been increasingly apparent that it is not easy to determine in advance which candidates proposed for Associateship are actually going to become specialists, and I think we are in the stage of having to take on a lot of dead wood, and then weeding them out before becoming Fellows. During the last two years it has been apparent that men are trying to get into the College who probably never will be able to qualify as Fellows. It is also apparent that many men practicing internal medicine, who are excellent material for membership in the College, look upon certification as equivalent to being a Fellow of the College. Fellowship certainly should mean something more exalted than just being recognized as an internist. If we are going to be an American College of Physicians, made up of internists and allied specialists, then let us take in only such internists and allied specialists to start with and then have an exalted rank of Fellowship for those who can qualify for a superior position in the College. That would not be difficult for those who have the capabilities to do so.

Furthermore, it is increasingly apparent that some who are now Associates and who perhaps never will be able to qualify as Fellows are commercializing their Associateships; so far as the laity is concerned, they are "members" of the American College of Physicians; the laity makes no distinction between Associates and Fellows. There is much of that going on among a small group of men who do not have, let us say, the gentlemanly instincts that we would like to require of our members.

So it seems to me, both as a Governor and as a member of the Credentials Committee, there are more than enough reasons to make this change. It will surely lead to great betterment of the College.

DR. BREED: In the past, the Board of Regents has always been interested in the opinion of the Board of Governors on any important question, and I should like to ask you whether, before the Regents vote on this question, they would like to have the opinion of the Board of Governors on the matter?

PRESIDENT PAULLIN: We would.

DR. ALEX. M. BURGESS: As a member of the Board of Governors, it seems to me this proposed change is a bit radical. It is quite a definite change. I believe the suggestion that a lag of about a year before this becomes effective is worth while. For a couple of years we would have very few candidates for Associateship. If we had a year to get ready, I think we might do better.

PRESIDENT PAULLIN: I would like to direct your attention to this fact: in the consideration of these qualifications which have been proposed, it seems to me that a great injustice might be done to many of the young men who may sooner or later, within the next year or so, apply for Associateship in the College who are members now of the military forces—the Army and Navy in particular—and who, under such circumstances, if these requirements are put into effect, would not be able to apply for Associateship, and we, in turn, would be deprived of the membership of a large number of men who later on we should be proud to have in the College. That is a point quite worth while and should be most carefully considered, because I have a great feeling for these boys who have gone out from a two- or three-year residency, or gone from the residency directly into the Armed Forces, and who will not, perchance, have an opportunity to become certified by the American Board.

DR. TENNEY: My understanding is that these men can be excused from their Services to take the board examinations.

DR. PAULLIN: It would be a little difficult for them to take these examinations in India, Africa and on the active war front. That privilege is reserved largely for those in this Country, and even then not all are able to get leave for the examinations.

DR. FLINN: The few young men who are left in practice have practically no time

at all to take an examination anywhere. If this change is made at the present time, I think it will cause an unnecessary hardship on that group, too.

PRESIDENT PAULLIN: Dr. Breed, will you ask the Board of Governors if they wish to express themselves with a recommendation to the Board of Regents?

. . . Dr. Breed assumed the Chair. . . .

CHAIRMAN BREED: Would you be willing to make a show of hands as to whether you would recommend favorably the adoption of this change?

. . . Showing of the hands revealed a considerable majority was not in favor of adoption of the change. . . .

DR. C. W. DOWDEN: Would I be out of order if I asked for a vote of those Governors who would like more time to consider this proposed change? I, personally, am not ready to vote either way.

CHAIRMAN BREED: I recommend that this be put on the table until the Governors are in a position to make a recommendation, if they feel that way. All I can do at the present time is to report to the Regents that the Board of Governors has reported unfavorably on this particular motion.

. . . President Paullin resumed the Chair. . . .

DR. O. H. PERRY PEPPER: I move, on behalf of the Board of Regents, that this matter be referred back to the Committee on Credentials for further study and report at a subsequent meeting of the Board of Regents.

. . . The motion was seconded by Dr. Griffith, and carried. . . .

DR. J. MORRISON HUTCHESON: I would like to suggest that when that recommendation comes back, the matter of the time limit be definitely dealt with, as well as the proposed change in requirements for Associateship.

PRESIDENT PAULLIN: Members interested in this resolution will communicate with the Chairman of the Committee on Credentials as to further recommendations.

Dr. Piersol, will you proceed with your report?

DR. PIERSOL: The following is an analysis of the group of candidates considered for Fellowship by the Credentials Committee on March 12, 1944:

Recommended for Advancement to Fellowship	56
Recommended for Election Directly to Fellowship	15
Recommended for Election first to Associateship	5
Deferred	15
Rejected	8
Total, Fellowship Candidates	99

The following 71 candidates have fulfilled the requirements for Fellowship and their election is herewith recommended (list published in the News Notes Section of this issue).

Six of the candidates proposed for Direct Fellowship were recommended for election first to Associateship, and their names will be recorded in the Associateship list.

Inasmuch as the Executive Secretary has advised the Board of Governors of the names of candidates deferred and rejected, the Committee does not herein record their names.

DR. PEPPER: I move the election to Fellowship of the 71 candidates recommended by the Committee.

DR. GRIFFITH: I second the motion.

. . . There was no discussion. The motion was put to vote and unanimously carried. . . .

DR. PIERSOL: The following is an analysis of the group of candidates considered for Associateship by the Credentials Committee on March 12, 1944:

Recommended for Election	79	
Fellowship Candidates Recommended first for Associateship	5	84
Deferred		1
Rejected		18
Total, Associateship Candidates		98*

The following 84 candidates have fulfilled the requirements for Associateship, and their election is herewith recommended (list published in the News Notes Section of this issue).

DR. PEPPER: I move the election to Associateship of the 84 candidates recommended by the Credentials Committee.

DR. BREED: I second the motion.

. . . There was no discussion. The motion was put to vote and unanimously carried. . . .

DR. PIERSOL: The following is a report on the group of candidates elected to Associateship five years ago, March 26, 1939:

Qualified for Advancement to Fellowship	105	(80%)
Deceased	2	
Resigned	4	
Terms Extended until after the War, due to Military Service	11	8(%)
Failed to Qualify (dropped from the Roster)	9	
Total, Associates elected March 26, 1939	131	

. . . . Under regulations of the By-Laws, or of the Board of Regents, eleven Associates whose terms normally would expire at this time were declared eligible to remain in status quo for a period after the War commensurate with that which they shall have served on active military duty, thus granting them opportunity to qualify for Fellowship later. Nine Associates were dropped from the Roster because of the expiration of their maximum five-year Associate term. . . .

The Committee on Credentials also recommends to the Board of Regents the reinstatement to Fellowship of Dr. Henry P. Wright, of Montreal, Que., Canada. Dr. Wright resigned sometime ago because of a contemplated change in status with regard to his specialty. He has returned to his original status in practice and his reinstatement is recommended also by the College Governor for Quebec.

DR. PEPPER: I move the reinstatement of Dr. Henry P. Wright.

DR. BREED: I second the motion.

. . . The motion was put to vote and unanimously carried. . . .

PRESIDENT PAULLIN: The report of the Committee on Credentials is before you, and you have adopted it section by section, except that one item was rejected. A motion is in order to adopt the report of the Committee as voted at this meeting.

. . . On motion by Dr. Pepper, seconded by Dr. Irons, the report of the Committee, as amended, was adopted as a whole. . . .

PRESIDENT PAULLIN: Next is the report of the Committee on the ANNALS OF INTERNAL MEDICINE by Dr. Walter W. Palmer, Chairman.

DR. PALMER: The Committee on the ANNALS OF INTERNAL MEDICINE met yesterday, and had only a few items to consider. One was a communication from the Executive Secretary in reference to the printers with regard to the binding of reprints. On account of labor shortage the printers suggest that reprints be bound

* Not including 5 Fellowship candidates.

with a staple at the side, instead of saddle-stitched, and as far as the Committee could determine the plan works perfectly satisfactory in the case where reprints are covered. There is a slight objection to the proposed method for self-covered reprints. In view of the situation, however, the Committee recommended that there would be no objection to this change in binding reprints, but suggested that the Executive Secretary communicate with the printers to determine if any saving made by this change would be reflected in the cost of reprints.

Another item considered was a communication from a firm in Rio de Janeiro, Brazil, requesting the privilege of translating the ANNALS into Portuguese, for distribution in that Country. The Committee recommends that before deciding this matter some information about the character of the firm be secured; also whether they would insert in such a translation their own advertisements; this investigation to be made through the Coördinator of Inter-American Affairs.

Mr. Loveland reported to the Committee that there had been a large increase in subscriptions from the Army, which has largely taken care of the reduction in circulation that grew out of remitting the dues of members on military service.

Dr. Clough, as Acting Editor, will report on material on hand for publication.

. . . On motion by Dr. Griffith, seconded by Dr. Pepper, and unanimously carried, the report of the Committee on the ANNALS OF INTERNAL MEDICINE was accepted. . . .

PRESIDENT PAULLIN: Next is the report of Dr. Paul W. Clough, Acting Editor of the ANNALS OF INTERNAL MEDICINE.

DR. CLOUGH: Material available for publication is not coming in as rapidly as it did under normal conditions. On the whole, the quality of the material submitted is not as good as average. In spite of this, we still have enough main articles accepted for publication to carry us through eight months, and enough case reports to carry us through a year.

There have been some difficulties in getting the journal out on time. Some of it, perhaps, is delay in editing; in part, it has been due to some delay in the printers getting out galley proof; in some cases, it has been due to delay in getting return of proof from authors. The matter that has been giving us the most difficulty has been that of book reviews. The men upon whom we have depended for book reviews are either in the service or so busy with other things that they have not been able to furnish us reviews as usual, and I, personally, have not been able to do much along that line either.

The Government has forced us to reduce the amount of paper used, 25 per cent by weight. This will be largely compensated by an actual reduction in the weight of paper stock by 25 per cent. This new paper, however, is not adequately opaque, and, on the whole, is not likely to be very satisfactory, but there is no recourse we can take.

The individual numbers of the ANNALS have been reduced in size somewhat, but we have kept within the limit set during the past six months. Unless there should be some further curtailment, I think we shall have no difficulty in maintaining the publication in its recent form. We are still anxious to get good original material for publication.

. . . On motion by Dr. Pepper, seconded by Dr. Griffith and unanimously carried, the report of the Acting Editor was accepted. . . .

PRESIDENT PAULLIN: We shall now have a report from the Committee on Educational Policy and the Advisory Committee on Postgraduate Courses. We shall combine these reports, and I shall call upon Captain Edward L. Bortz, Chairman of the Advisory Committee on Postgraduate Courses, to report first.

CAPTAIN BORTZ: Mr. Chairman, members of the Board of Regents and Board of Governors: The courses offered by the College are becoming increasingly popular. There were 407 men who took the courses last year, and of that number 300 were

members of the College. This spring three courses are being offered—one at the University of Michigan, one at Ohio State University and one at the Massachusetts General Hospital. As soon as these courses were announced, there was an immediate rush to enroll.

The Committee has had a problem to determine what to do with non-members of the College who want to take these courses. At a meeting of the Committee yesterday, it was determined to recommend that no non-member of the College shall be admitted to any of our Postgraduate Courses before fifteen days preceding the opening of the course, and I move the adoption of their recommendation.

DR. PEPPER: I second it.

DR. DOWDEN: How are you going to treat candidates for membership?

CAPTAIN BORTZ: It would seem, in view of the fact there is such a wide demand from members to take these courses, until facilities can be augmented, candidates would have to be classified as non-members.

MR. LOVELAND: I would suggest that when a course is open to non-members, we give first choice to candidates.

PRESIDENT PAULLIN: Is that satisfactory, Dr. Dowden?

DR. DOWDEN: Entirely.

. . . The motion was put to vote and unanimously adopted. . . .

CAPTAIN BORTZ: The second recommendation of the Committee is that the matriculation fee for non-members taking these courses shall be twice that of members. I make such a motion.

. . . The motion was seconded by Dr. Pepper. There was no discussion. It was put to vote and unanimously carried. . . .

CAPTAIN BORTZ: The Committee would like to have the approval of the Board of Regents to continue its work, and to organize courses for next autumn, possibly in Philadelphia, Chicago, Boston, New York and Rochester, Minn., or wherever arrangements can be made.

. . . On motion by Dr. Pepper, seconded by Dr. Griffith and unanimously carried, the recommendation was approved. . . .

CAPTAIN BORTZ: It has been previously stated, at a meeting of the Board of Regents, that Regional Meetings of the College are definitely a postgraduate aspect of our activities. It is, therefore, appropriate to report herewith that during 1943 twelve Regional Meetings were held, with an attendance of approximately 3,000 physicians; that during 1944 a local Regional Meeting was held in Los Angeles, February 26, under Governor Roy E. Thomas; that a Regional Meeting, combined with the War-Time Graduate Medical Meeting, is scheduled for the latter part of June in Denver, under the Chairmanship of Dr. James J. Waring; that another Regional Meeting will be held in Philadelphia for Eastern Pennsylvania, Delaware, New Jersey and adjacent territory in the autumn. It is hoped that during this meeting in Chicago other Governors will definitely agree on a schedule that will cover the entire Country.

. . . On motion by Dr. Griffith, seconded by Dr. Pepper, and unanimously carried, the report of the Advisory Committee on Postgraduate Courses was accepted as a whole. . . .

CAPTAIN BORTZ: Another matter was placed with the Committee on Educational Policy and the Advisory Committee on Postgraduate Courses. Throughout the nation there has been great concern on the part of a number of leading biologists and men of science concerning the lack of interest in the teaching of biology in the secondary schools of the nation. Notably Oscar Riddle, Alan Gregg, Cowdry, and many others have decried this dearth of teaching in the field of biology. A resolution was placed before the Committee on Public Relations last autumn, and President Paullin requested that it be re-presented before the Committee on Educational Policy for further review. We want to present the following statement and resolution, which the Committee recommends for adoption:

"The diminution in the teaching of life science and biology in many secondary schools, including high schools, to a near vanishing point has been clearly shown in data compiled by a committee appointed for such a survey by the Union of American Biological Societies.

"It is believed that the organized medical profession should adopt means of co-operating with teachers of science, particularly in the field of biology, in an endeavor to obtain and maintain a proper place for the teaching of science in the secondary schools. A background of biology provides a solid basis for the effective teaching of health topics and for providing the public with a sane outlook on health and disease.

"Accordingly the following resolution is respectfully presented to the Board of Regents of the American College of Physicians:

> "WHEREAS, an understanding of biological principles is essential to the health of the individual and society; and
>
> "WHEREAS, basic instruction in the methods of science inculcate principles and habits of truth, diligence and reasoned judgment, qualities of culture indispensable to good citizenship; and
>
> "WHEREAS, the medical profession has a primary obligation to safeguard the health of the nation; therefore be it
>
> "RESOLVED, that the American College of Physicians encourage and actively support close co-operation between its membership and teachers of science in their respective communities throughout the nation, to the end that the curriculum of secondary schools shall provide for adequate instruction in the sciences."

. . . The motion to accept this was made by Dr. Griffith and seconded by Dr. Piersol, and then opened for discussion. . . .

DR. ELMER L. SEVRINGHAUS: I am heartily in favor of this resolution, but I wonder if we would not implement it very much more forcibly if we also took the step of bringing this to the attention of the National Congress of Parents and Teachers, for, in many instances, the teachers of biology are practically without opportunity to forward their own subject. If the demand were to come increasingly from parents, as well as from physicians, I believe we should get farther ahead and get there faster. I wonder if the resolution might also be made to include such a step?

CAPTAIN BORTZ: I would highly endorse that. It is a splendid suggestion.

PRESIDENT PAULLIN: This recommendation has the consent of Drs. Piersol and Griffith.

DR. LAWRENCE PARSONS: The American Society for the Control of Cancer is doing something along this same line—trying to teach at least high school students something of the elementary facts about cancer. It has a secondary school program underway. I think the proposed resolution is a most admirable one for the College to support.

. . . The motion was put to vote and unanimously carried. . . .

PRESIDENT PAULLIN: Next is the report of the Committee on Fellowships and Awards, Dr. Francis G. Blake, Chairman.

DR. BLAKE: As you already know the activities of this Committee, by direction of the Board of Regents, are in abeyance for the duration. I merely have to report that the last Research Fellow of the College, Dr. Carl G. Heller, completed his fellowship, under the direction of Dr. Myers at Wayne University, last June, and as a result of this work has submitted a publication in the field of sex hormones which I believe is quite comparable in quality to the excellent work of other Research Fellows of the College.

. . . On motion by Dr. Griffith, seconded and carried, the report was accepted. . . .

PRESIDENT PAULLIN: Next is a report from the Committee on Public Relations,

of which Dr. Roger I. Lee is Chairman. In his absence, Dr. David P. Barr will report for the Committee.

. . . In the initial report by Dr. Barr, and on recommendation by the Committee on Public Relations, the dues of one Fellow were waived until such time as he may reënter remunerative medical work; application for waiver of dues by another Fellow was denied; and six delinquent members of two years' standing were voted an extension of sixty days' grace in which to pay up their delinquent dues, with provision that their names be dropped from the Roster in accordance with the By-Laws if they fail so to do. . . .

DR. BARR: Mr. President, the Committee has an important matter to bring before the Board. Following the Rheumatic Fever Conference held at New York on January 26 and 27, letters were received by yourself from Dr. Marvin, the Executive Secretary of the American Heart Association, and from Dr. T. Duckett Jones. These letters spoke with great enthusiasm of the important rôle played by the representatives of the College at the meeting, and, particularly, of the great help rendered by General Hugh J. Morgan and Dr. William D. Stroud at that time. These letters stated the purposes of the conference; the extension of public programs for the study, prevention and treatment of rheumatic fever; a search for Federal, State, local and private financial support for the enterprise; that there be established a Council on Rheumatic Fever under the leadership of the American Heart Association, with representation from various interested organizations. These letters requested that the American College of Physicians appoint two representatives on the Council on Rheumatic Fever. In making this request, the Executive Secretary, Dr. Marvin, was particular to point out that mere representation is not all that is necessary. Representatives must be willing to participate in many activities which the Council will undertake.

The Council will not be a paper organization, but one actively engaged in many aspects of research in the prevention and treatment of rheumatic fever. The very first step, after formation of the Council, will be the raising of enough funds for organization purposes, which will include the employment of a full-time director, with office and secretarial staff. While plans for support on a national scale have been discussed and will be explored, the organization will ask participants to make a financial contribution for at least a year or two during the formation of the Council. Mr. President, the Committee recommends that the President of the College be empowered to appoint two representatives to the Council on Rheumatic Fever.

DR. BREED: I second the motion.

PRESIDENT PAULLIN: Is there any discussion?

DR. WILLIAM D. STROUD: There was a two-day meeting in New York, at which this whole problem was carefully studied. Among those in attendance were General Hugh J. Morgan, representing the Army and the American College of Physicians; Colonel W. Paul Holbrook, representing the American Rheumatism Association and the Army Air Forces; Dr. Homer Swift; Dr. T. Duckett Jones; Dr. Martha Eliot, representing the Children's Bureau; Surgeon Mark P. Schultz, representing the U. S. Public Health Service; Admiral Smith, the Navy; Dr. Marvin and Dr. Thomas McMillan, representing the American Heart Association. Dr. Paul White could not be present, but wrote a letter approving the organization of this Council. There were also representatives of the American Association of Social Workers. The Assistant Commissioner of Public Health of New York was present; Dr. Edwin J. Rose, representing the Veterans Administration; also representatives of life insurance companies, and Dr. Hyde, of Rochester, who suggested that the American Legion might make rheumatic fever the subject of their contributions.

I think General Morgan agrees with me that this is an important organization, that it is going to accomplish things. We hope the Council will be the recipients

of a $250,000.00 fund that Costello is donating for this work, and also a like amount that Abbott, his associate, is contributing. It is said that Abbott & Costello want to raise an extra $300,000.00, and that the entire fund be used in California, but we hope to have it made available for the United States at large.

PRESIDENT PAULLIN: General Parran, would you like to say a few words on this?

SURGEON GENERAL PARRAN: Mr. Chairman, the incidence of rheumatic fever has varied tremendously, depending upon the geographic—perhaps, climatic considerations. Admiral McIntire, Surgeon General of the Navy, has organized an intensive research in connection with the problem, and we are working with him, having in mind the condition of these boys when they come back to civil life. Obviously, rheumatic fever is one of our great and, as yet, unsolved public health problems. We welcome the formation and activation of such a group as Dr. Stroud has described.

PRESIDENT PAULLIN: General Morgan, will you speak for the Army?

GENERAL MORGAN: The Army at the present time has a commission at work in an intensive way on rheumatic fever. The Army Air Forces, under the direction of Colonel W. Paul Holbrook, has launched a very comprehensive program in the study of this disease. We know it is a problem of the first magnitude. I strongly support Dr. Stroud's statement relative to the formation of such a Council and the undertaking of such a program. I glory in the fact that it has been done by doctors —a manifestation of leadership in attacking a health problem—the type of leadership that will very likely be productive of great good in the field in which we are all concerned. I hope the American College of Physicians will support this movement.

. . . The motion was put to vote and unanimously carried. . . .

. . . On motion by Dr. Pepper, seconded by Dr. Cocke, and unanimously carried, the report of the Committee on Public Relations was adopted as a whole. . . .

PRESIDENT PAULLIN: Dr. Irons, the incoming President, will appoint the two members of the Council later. May we have a report from the American Board of Internal Medicine, Dr. Ernest E. Irons, Chairman?

DR. IRONS: Mr. President, you have already heard from the Minutes of the previous meeting of the Board of Regents reference to our finances. Years ago we had supposed that the Board would probably have about 200 candidates per year for consideration. The number has been about 400.

We thought the War would interfere with the examinations. There has been a surprising number of men up for examination, not in the military service. Furthermore, we have taken special measures to afford opportunity for men in the military service to take the examinations. We have had marvelous coöperation from the Surgeons General, so that the written examinations have been taken in quite wide areas—Africa, Australia, England, Southwest Pacific and in India. We have been very much surprised at the ease with which the matter of supervision of the examinations has been accomplished.

. . . Dr. Irons proceeded to discuss the question of expiration of terms of service of several of the Board members, and discussed with the Board of Regents various possibilities for appointments to fill vacancies by the American College of Physicians. The names of four nominees were presented and approved by the Board of Regents, with the provision that two of the nominees who would accept appointment be elected and their names later published. These two appointees shall fill vacancies caused by the expiration of the terms of Drs. William S. Middleton and William S. McCann. . . .

PRESIDENT PAULLIN: Next is the report of the War-Time Graduate Medical Meetings by Captain Edward L. Bortz, Chairman, and by Dr. William B. Breed, Secretary.

CAPTAIN BORTZ: Mr. Chairman, and members of the Board of Regents and Board of Governors: This is a progress report. The number of individual meetings, ranging from a short lecture and discussion period to a six-day course with the participation of a number of authorities in the various specialties, has been 77; the number of continuation courses, that is, one meeting a week or one meeting every two weeks, is 84; the total number of meetings, 167; the total number of daily sessions has been 637. 107 Army Hospitals, 20 Navy Hospitals and 13 civilian hospitals have participated. Meetings have been held in practically every State, with few exceptions. There have been half a dozen lectures in Canada, and the Committee is cooperating with a big meeting to be held in Southwestern Canada this spring. The approximate number of doctors who have attended these meetings is in excess of 15,000. The number of teachers serving on the national faculties has been something over 1,650. We have a circulation of the monthly bulletin of 2,200. Many of the doctors from civilian hospitals have written in to thank us for the privilege of engaging in this work, have often failed to turn in statements for expenses, and have asked when they can serve again. In addition, we have had doctors from Army Hospitals going into Naval Hospitals, and vice versa. All in all, this has proved to be a very worthy plan, as originated by Dr. Paullin and Dr. Irons some eighteen months ago, and it appears to be gaining momentum.

DR. BREED: Mr. President and members of the Boards: I have here the routine quarterly report, a copy of which will go to the American Medical Association, the American College of Surgeons and one to the Chairman of your Finance Committee. On January 1 there was, roughly, $22,000.00 in the bank. In the meantime, we received $5,000.00 from this College, and have a balance of $21,992.18. Since this movement started, we have had at our disposal $40,000.00—$20,000.00 from the American Medical Association and $10,000.00 each from the College of Physicians and the College of Surgeons. The largest amount of our expenditures goes to instructors for traveling expenses, very little for honoraria. In all, we have paid instructors $8,500.00. We estimate that if the program goes along at the same rate as it has in the past quarter, we shall need $5,000.00 a quarter, which is roughly $20,000.00 a year as an annual budget. The Committee at this meeting is not requesting further funds from this College.

PRESIDENT PAULLIN: The acceptance of this report is in order, and I feel quite certain that a great deal of the success of this program is due to the enthusiasm with which the Governors of our College have entered in its preparation and the enthusiasm with which they have devoted of their time, their energies and their skill in seeing that these programs were given at military installations. The thanks of the College go to the men who have served in this capacity.

. . . On motion by Dr. Cocke, regularly seconded and carried, the report was adopted. . . .

PRESIDENT PAULLIN: Next is the report of the Committee on Post-War Planning for Medical Service, Dr. Walter W. Palmer, Chairman.

DR. PALMER: There have been two meetings of the A. M. A. committee since the last meeting of the Board of Regents. The meeting in Washington, January 14, 1944, was reported in the Journal of the American Medical Association, February 12, p. 447. Location and relocation of physicians in demobilization was considered an important problem. The committee voted to recommend to the Board of Trustees of the American Medical Association that the Board look into the desirability of establishing an agency for disseminating information on the location and relocation of physicians in the post-war period.

The problem of internship, resident and specialty training was discussed at length. There was unanimous agreement among those present that duplication of effort in the field should be avoided. Since the Council on Medical Education and Hospitals has a well organized office to secure the information concerning the

facilities already available and explore possibilities for coping with the post-war situation, it was decided desirable to seek coöperation with this committee. The suggestion was most cordially received by the Council. The discussion of the subject brought out the fact that in all probability few men returning to civilian life would desire internship. The demand would almost surely be for residencies and specialty training facilities. In all probability, a large number of men will be taken care of by the hospitals in which they had their internship. From a preliminary survey among the medical friends of the Chairman, the resident opportunities now existing can be doubled, provided adequate finances are forthcoming. There is also the possibility of establishing resident positions in hospitals not now having them.

In order to form some idea of the demand for the above services, a questionnaire is to be sent first to a pilot of about 3,000 men now in the Armed Forces. Later, it is hoped that all men in the services will receive the questionnaire.

The questionnaire proposed is a very detailed and comprehensive one. It covers a man's training, where he had been in practice, if in practice, or the hospital where he had been serving as intern or resident. It asks for specific data as to what kind of specific training he might look for after the War; it included possibilities for continuation in the Armed Service, in industrial medicine, etc.; it took up matters of licensure, economic factors, whether he would like to practice medicine on a salary, and so forth.

The main committee met again in Washington on March 4. Some 67 returns from the 3,000 questionnaires sent out had been returned. All showed interest in the post-war planning program.

It was voted to ask representatives from the Federation of State Licensing Boards, the Association of American Medical Colleges, the American Hospital Association and the Catholic Hospital Association to serve on the committee.

The Committee met yesterday and voted to submit the above recommendation and further suggested that fellowships be added to the internship and residencies. It was also suggested that a representation from the American Dental Association might be helpful in the main A. M. A. committee, and that Dr. Lee be asked to present the suggestion. In planning for opportunities for further study after the War, Army, Navy and Veterans Bureau Hospitals, as a source of good residencies, should be considered.

PRESIDENT PAULLIN: On the main committee there is also Brigadier General Rankin of the Army; General Draper of the Public Health Service; and Admiral Sheldon of the Navy.

If there is no objection, this report of the Committee on Post-War Planning will be spread on the Minutes of the College. I would like to take this opportunity to thank Dr. Palmer and his group for the contribution which they are making, and for the study of problems that are going to face the College in dealing with many of our members when they come back from service.

Next is the report of the Committee on Finance, Dr. O. H. Perry Pepper, Chairman.

DR. PEPPER: The Finance Committee met on March 31, 1944, with Drs. Bruce, Stone and Pepper of the Committee, and the Treasurer, Dr. Stroud, and Mr. Loveland, the Executive Secretary, in attendance. The Committee begs to report on the following items:

1. The Financial Report of the War-time Graduate Medical Meetings for the two months ending December 31, 1943, was examined and approved. The report showed expenditures of some $7,200.00, and a cash balance of $22,452.00, which has since been increased;

2. The audited Financial Report of the College for 1943 shows a balance of $27,902.00. This satisfactory balance was gained in spite of the remission of

dues to Fellows and Associates in Service, by the omission of the Annual Meeting with its profit from exhibits, and by the expenses incident to the Regional Meetings. These debits were balanced by an unexpected number of Life Memberships, an increased income from the ANNALS, and by an excellent profit from the property adjoining the Headquarters and from investments;

3. The Committee noted with satisfaction the reduction of $26,000.00 in assessment on the College Headquarters, to $6,000.00, with a resulting saving of about $750.00 a year. This reduction is due to the efforts of Dr. Stroud;

4. The Committee received a preliminary report from the Executive Secretary concerning the matter of pensions for the College personnel referred to him for study.

The Committee is of the opinion that such a system should be instituted along the following lines: it should be obligatory and should apply to all full-time employees; the age of retirement should be optional with the College at 65; it should be on an actuarial basis with relationship to years of service and within the limits of $50.00 a month minimum and $200.00 maximum; there should be no life insurance feature; the College should pay about 80 per cent of the premium, the employee 20 per cent; an employee would become eligible for inclusion after two years of employment on a retroactive basis; an employee leaving the College for another position should receive full refund with interest.

It is estimated that this plan would cost the College about $3,000.00 a year.

The Committee recommends that the Executive Secretary study this matter further and bring a concrete proposal along the above lines to the Regents at their next meeting.

. . . On motion by Dr. Pepper, seconded by Dr. Griffith, items "1", "2" and "3" in the Finance Committee's report were accepted, and recommendation under item "4" was unanimously approved. . . .

DR. PEPPER (Continuing):

5. The Committee recommends the acceptance of the generous donation of the Faculty of the Philadelphia Postgraduate Course of the American College of Physicians of its surplus on the course, amounting to $2,284.30, and that it be held for such use as the Regents may later decide in the training or rehabilitation of Fellows and Associates returning from service in the Armed Forces.

"It is usual for such surplus from fees to be distributed to the teachers or expended in entertainment, but the Philadelphia group did not do so, and have recommended that the College spend it on one of three purposes: (1) postgraduate activity in Philadelphia; (2) research; (3) the purpose recommended by your Finance Committee.

. . . On motion by Dr. Pepper, seconded by Dr. Irons, and unanimously carried, recommendations in section "5" above were approved. . . .

DR. PEPPER (Continuing):

6. The Committee recommends that the Regents appropriate $1,000.00 from anticipated surplus, all or part of which sum may be contributed to the Council for Study, Prevention and Treatment of Rheumatic Fever on recommendation of the Fellows appointed as representatives of the College on that Council.

We have put this in this form, because we have no idea whether we should give the Council, $100.00, $500.00 or $1,000.00; we do not know what the other organizations are going to do; we do not know what the expenses of the Council will be. Our representatives on the Council will determine these matters after they start serving, and they will have the authority to draw on us for the Council up to $1,000.00.

. . . On motion by Dr. Pepper, seconded by Dr. Griffith, and unanimously carried, section "6" above was approved. . . .

DR. PEPPER (Continuing):

7. The Committee wishes to inform the Regents that it has surveyed and approved the sales and purchases of securities made since the last meeting and contemplated at present.

There has occurred a shift of funds from the General Fund to the Endowment Fund, due to the increase in Life Members, whose payments and initiation fees go to the Endowment Fund. This has left the General Fund somewhat overinvested, and the Committee has approved the holding as cash for the present some $10,000.00 received from a call of bonds. On the other hand, the Endowment Fund has a cash balance of $17,000.00, which is in process of being invested.

8. Finally, the Committee expresses its satisfaction with the financial status of the College, the excellent supervision of these matters by the Executive Secretary and by Drexel & Co.

. . . On motion by Dr. Pepper, seconded by Dr. Griffith, and unanimously carried, the report of the Committee on Finance was adopted as a whole. . . .

DR. IRONS: Would it not be proper for us to send a vote of thanks to the Philadelphia group for their donation of the postgraduate fund? I so move.

DR. COCKE: I second the motion.

. . . The motion was put to vote and unanimously adopted. . . .

PRESIDENT PAULLIN: I wish to turn the meeting over to Dr. William B. Breed and the Board of Governors for the transaction of such business as they may have.

. . . Dr. Breed, as Chairman of the Board of Governors, assumed the Chair. . . .

CHAIRMAN BREED: . . . I want to comment first of all on the extraordinary attendance of the Governors—56 present and only 7 absent. You are to be congratulated.

Although we hope the War will not last long, we must assume that we may not have a large regular Annual Meeting for a number of years, and we must, therefore, plan to keep alive the activities of the Governors in the various territories in the interest of more Regional Meetings. During 1943 there was one Regional Meeting, during February, in Massachusetts; one in the South Central States, during April; one in the Middle Atlantic States, during April; one in Montana and Wyoming, during May; one in Western New York, one in the Mid-Central States, in May; one in Ohio for Ohio, Kentucky, West Virginia and Western Pennsylvania, one in the Southeastern States, in May; one in the Northwestern States and the Canadian Southwest, in June; one in the North Central States in October; another in North Carolina in October; and one in the North Middle Atlantic States in November. The plans for 1944 have not been entirely crystallized. The Board of Governors should take some more concrete action as to agreeing on where other Regional Meetings shall take place, and I hope you will give some thought to this and during the next few months your Chairman may be inquiring about your plans.

The Board of Governors at this meeting needs to appoint a member of the Committee on Credentials for a term of three years, due to an expiration.

. . . On motion by Dr. Dowden, seconded and regularly carried, Dr. William B. Breed was reappointed to the Committee on Credentials. . . .

CHAIRMAN BREED: The meeting is now open for any new business that may appropriately be brought up.

DR. BURGESS: In connection with your statement concerning Regional Meetings, you failed to clearly state that the meeting in Massachusetts was for the New England States, and I would like to point out that it was most successfully conducted under your Chairmanship.

. . . Dr. Dowden, of Kentucky, initiated a discussion as to how States are districted for Regional Meetings, and expressed the opinion that Kentucky had no suit-

able assignment with other States. Growing out of the discussion, it was pointed out that there is no hard and fast rule about the districting of States, that States may join up in the most advantageous and suitable manner, according to their own particular desires. It was also pointed out that last year Kentucky held its Regional Meeting in connection with the States of Ohio, Western Pennsylvania and West Virginia, and that those States still hoped Kentucky would continue in their group. However, Kentucky was invited to join with Michigan, with Illinois, with Indiana, with West Virginia, or others. . . .

. . . On motion by Dr. Paul F. Whitaker, seconded by Dr. George H. Lathrope, and carried, a motion was adopted to leave the matter for arrangement between the Chairman of the Board of Governors and the Governor for Kentucky for assignment of the group with which Kentucky would coöperate in the future. . . .

. . . President Paullin resumed the Chair. . . .

PRESIDENT PAULLIN: Next on our agenda is the election from the Board of Regents of a member on the Committee on Credentials. The present incumbent is Dr. George Morris Piersol, whose term now expires.

. . . On motion by Dr. Cocke, seconded by Dr. Hutcheson, and unanimously carried, Dr. Piersol was reappointed to the Committee on Credentials for a term of three years. . . .

PRESIDENT PAULLIN: Next are special problems and topics, future policy with regard to Annual Meetings; I think it is, perhaps, a little early to decide this latter problem now.

. . . On motion by Dr. Cocke, seconded and regularly carried, all matters referring to the next Annual Meeting of the College were left in the hands of the Executive Committee of the Board of Regents. . . .

PRESIDENT PAULLIN: There will be a meeting of the Board of Regents immediately after adjournment of the Annual Business Meeting this afternoon. There should also be a meeting of the Board of Regents in the autumn.

. . . On motion by Dr. Griffith, seconded by Dr. Breed, and unanimously carried, the date of the meeting of the Board of Regents, to be held in the autumn of 1944, was left in the hands of the President and Executive Secretary. . . .

PRESIDENT PAULLIN: Is there other business?

DR. COCKE: The Committee on Constitution and By-Laws was requested within the thirty-day period to consider a revision of the By-Laws, Article IV, Section (1), with regard to the terms of office of Governors. At present the By-Laws provide for no limitation of their service. The Committee has no recommendation to make, because the only way the By-Laws can be amended would be by properly drawing up a resolution, which should be published thirty days before the Annual Business Meeting. We suggest for your consideration that the term of Governors might be limited to two consecutive terms of three years each.

PRESIDENT PAULLIN: You have heard the comments of Dr. Cocke, as Chairman of the Committee on Constitution and By-Laws. The Secretary will kindly make any announcements.

. . . Executive Secretary Loveland made several announcements. . . .

PRESIDENT PAULLIN: Are there any other matters that Regents or Governors would like to present?

DR. FLINN: As a member of the Board of Governors, I would like to express our approval and pleasure in meeting with the Board of Regents. It has been most instructive and helpful, and I hope we shall have the opportunity to do this again.

. . . The above comment was accepted as a motion, seconded by several and unanimously carried by the Board of Governors. . . .

Adjournment

Attest: E. R. LOVELAND,
Secretary

ANNUAL BUSINESS MEETING

CHICAGO, ILL.

APRIL 1, 1944

The Annual Business Meeting of the American College of Physicians, held at the Palmer House, Chicago, Ill., April 1, 1944, convened at five o'clock, with President James E. Paullin presiding.

The Secretary, Mr. E. R. Loveland, read abstracted Minutes of the last Annual Business Meeting, which were approved as read.

President Paullin called upon Mr. Loveland to present his report as Executive Secretary.

MR. LOVELAND: The Executive Secretary's report is supplementary to the reports of the Treasurer, Secretary-General and President. Much that has happened in the College will be referred to in the Presidential Address this evening.

The past two years, since the outbreak of the War, have been characterized by some changes in the activities of the College, especially by a more vigorous program of aid and service to our members in the Armed Forces, of whom there are 1,640, exclusive of the new members elected today, which will bring the total up to 1,685, or slightly more than 32 per cent.

The central office makes a great effort to maintain contact with every member in the Armed Forces and to keep our mailing lists up to date. We already know of ten members who have died or who have been reported missing in action while on active duty.

During the autumn of 1943 we published a complete Roster of the members of the College. It is quite impossible, while so many are on military service, to collect complete data for the publication of the regular Directory, and the Regents have indicated that no complete Directory shall be published for the duration of the War.

Twelve Regional Meetings, covering nearly the entire United States, were held during 1943; one has been held since January first, and others are being scheduled and will be announced in the ANNALS OF INTERNAL MEDICINE.

Although the income of the College has been considerably reduced by the waiver of dues of members on active military service and by the reduction of the Initiation Fee of such men who qualify for Fellowship while on duty from $80.00 to $10.00, income from other sources, especially from subscriptions to and advertising in the ANNALS OF INTERNAL MEDICINE, has materially increased. The ANNALS has been placed on the official list of the Offices of the Surgeons General of the Army and Navy, and the journal is going to most of the important Army and Navy installations throughout the world. Futhermore, there has been a very marked increase in Life Memberships, due possibly to the increase in incomes of our members generally and also due to the savings effected in income taxes, the Life Membership Fee being deductible.

We believe the headquarters' office has been maintained at a high degree of efficiency, even though our staff has been reduced in numbers and there have been numerous changes in personnel due to War conditions. We in the central office pledge ourselves anew to serve the College and its membership in the most efficient and courteous manner possible.

In concluding my report, I want to add assurances of how deeply I have appreciated the opportunity to work with Dr. Paullin as President and with other Regents and Governors of the College. At all times your President has had the welfare and interest of the College at heart. (Applause.)

PRESIDENT PAULLIN: Next is the Treasurer's report by Dr. William D. Stroud.

DR. STROUD: The accounts of the College have been audited by a Certified Public Accountant, have been submitted to the Board of Regents and the Board of Governors, and will be published in the near future in the ANNALS OF INTERNAL MEDICINE.

The 1943 balance was $27,902.20, of which $17,506.72 was added to the General Fund and $10,395.48 was added to the Endowment Fund. It is of significance to note that there was a great increase in Life Members during 1943, and it was from that source that the Endowment Fund increase arose.

The College operated considerably within its budget for the year. The total receipts were $95,029.05 and the total expenditures were $75,107.33. The portfolio of investments, according to the report of our Investment Counsel, is in a favorable condition. The Finance Committee receives regular analyses of all investments periodically. As of January 1, 1944, the College held investments at book value totalling for the Endowment Fund $144,787.36, and for the General Fund $115,903.16, or a total of $260,690.52.

The Board of Regents has approved a budget for 1944 calling for an estimated income of $92,910.00, and an estimated expenditure of $81,115.00, with a consequent estimated balance of $11,795.00.

It may be added that the American College of Physicians has contributed from its funds $10,000.00 toward the support of the War-Time Graduate Medical Meetings, and has given that Committee headquarters space, light and heat in the College Building. It should also be noted that all members on active military duty have received full waiver of dues, and those elected to Fellowship while on active service have received a reduction in the Initiation Fee from $80.00 to $10.00. This has affected the College income by an amount estimated at $24,000.00 per annum, but the College has gauged its expenditures accordingly, and has profited by increased income from other sources, such as subscriptions to the ANNALS OF INTERNAL MEDICINE from the Medical Corps of the Army and Navy.

Since the American College of Physicians is a non-profit organization, we have finally been successful through pressure brought to bear upon the Board of Revision of Taxes in Philadelphia to have the assessment on our property reduced from $32,000.00 per year to $6,000.00 per year, which reduces our taxes to approximately $170.00 per year.

PRESIDENT PAULLIN: The next is the Secretary-General's report, Dr. George Morris Piersol.

DR. PIERSOL: *Membership:* Since the last Annual Session of the College at St. Paul in 1942, we have lost by death 90 Fellows and 16 Associates, or a total of 106; by resignation, 1 Fellow and 1 Associate, or a total of 2; dropped for delinquency, 1 Fellow and 1 Associate (exclusive of 4 Fellows and 2 Associates given sixty days' grace this morning); by failure to qualify for advancement to Fellowship within the maximum five-year period prescribed by the By-Laws, 30. The total membership mortality for this period has been 140. There have been elected to Fellowship 421 physicians, a small percentage of whom were direct elections because of special qualifications and outstanding accomplishments. There have been elected to Associateship 438. 1 Fellow and 1 Associate have been reinstated. The total additions to membership were 861.

The total membership of the College as constituted at this date is as follows:

4	Masters
4,056	Fellows
1,138	Associates
5,198	Total

This is actually a net increase in numbers over our annual report at the St. Paul Session in 1942 of 361 names.

Life Membership: 115 Fellows have become Life Members since our last Annual Business Meeting, making a grand total of 298, of whom 25 are deceased, leaving 273 on the Life Member Roll at this time. Incidentally, there have been 78 new Life Members since the last meeting of the Board of Regents on November 20, 1943.

The *Advisory Committee on Postgraduate Courses* conducted during 1943 6 Postgraduate Courses, 3 in the spring and 3 in the autumn, with a total attendance of 407, and has 3 courses scheduled later this month, with an advance registration of 195. In practically every instance these courses were greatly oversubscribed. The College is limited chiefly by availability of facilities and faculties for the further extension of these courses. Four additional courses will be scheduled for the autumn of the current year.

Fellowships and Awards: Research Fellowships and Award of the John Phillips Memorial Medal were discontinued by the Board of Regents following the outbreak of the War, but 4 Research Fellowships had been awarded just previously thereto, 2 of which were carried through to completion and 2 were relinquished because the recipients were called to military service.

War-Time Graduate Medical Meetings: The College has furnished the office space and other facilities to this Committee, made up jointly among the American College of Physicians, the American College of Surgeons and the American Medical Association, has contributed $10,000.00 toward its support and has made a great contribution to its work through the large number of Governors and Regents participating on the regional committees and faculties. This Committee has carried postgraduate instruction to the medical officers of the Army and Navy in practically all parts of the United States and some parts of Canada, and we have many assurances that this work has been deeply appreciated by the physicians in the Armed Forces. A more detailed report by Captain Edward L. Bortz, Chairman of that Committee, will appear in the ANNALS OF INTERNAL MEDICINE, and reports of progress likewise are published from month to month.

Now, President Paullin, since you assumed office two years ago at St. Paul, those of us whose privilege it has been to work with you have not only been inspired by your leadership during these trying times, but have become endeared to you by reason of your fairness and the constant consideration with which you have handled all matters brought to you. Therefore, it is my pleasure and privilege on behalf of your fellow officers, Regents and Governors of the College, to present to you a little token of a more enduring type to show our appreciation and the esteem in which we regard you, and to thank you for the admirable way in which you have steered the College through the devious and dangerous shoals of the last two years. It is my privilege to present you with this gavel. (Applause.)

. . . Presentation of gavel to retiring President Paullin. . . .

PRESIDENT PAULLIN: Dr. Piersol, members of the Board of Regents, members of the Board of Governors, members of the College, it has been a pleasure for me to contribute my little effort toward the advancement of the purposes and the ideals for which this College stands. The past two years have not been easy ones. Many problems have been presented to this College and many problems have been presented to our nation—many problems affecting the medical profession. It has not always been possible to carry on and to do all the things that we thought ought to be done; yet with such hearty coöperation from the Board of Regents and the Board of Governors, and, in particular, by the unselfish service of Mr. Loveland and his staff, the task which might have been difficult has been a very easy one.

I look forward to the future of this College with the greatest hope and expectation, knowing that in coming years it must of necessity take its place among the lead-

ing organizations of this Country, in establishing for the people of this Country an excellence of quality of medical care which will be unsurpassed by any people on God Almighty's green earth.

For your support, for your encouragement and for your putting up with a "frozen" asset for the past year, my sincere and deepest thanks. (Applause.)

It is my privilege and pleasure to present to you an "unfrozen" President-Elect. In presenting your new President, Dr. Ernest E. Irons, of Chicago, the College is in safe hands. He has been a member of our Board of Regents and he has served in various capacities for the past ten or more years in the College, and he is quite familiar with its ideals and with its precepts. He has a broad vision of the future. I know of no man to whom the raiment which I am now discarding would better fit than Dr. Irons. (Applause.)

. . . President-Elect Irons assumed the Chair. . . .

PRESIDENT IRONS: Thank you, Dr. Paullin. I need not assure you that I appreciate very deeply the responsibility, as well as the honor, which you have shown me, and I am quite aware that the problems so well handled by Dr. Paullin will be followed by other problems perhaps as difficult, but certainly they will be easier to solve, having his pattern to follow.

The next business on the program is the election of officers. Part of the nominations has already been published in the ANNALS OF INTERNAL MEDICINE. I will ask Dr. William B. Breed, Chairman of the Nominating Committee, to present the nominations.

DR. BREED: Mr. President and members of the College: In accordance with the By-Laws of the American College of Physicians, Article I, Section 3, the following nominations for the elective officers, 1944–45, have been announced and published, and are herewith presented for action:

President-Elect.....David P. Barr, New York, N. Y.
First Vice President.....Charles H. Cocke, Asheville, N. C.
Second Vice President.....Walter W. Palmer, New York, N. Y.
Third Vice President.....James J. Waring, Denver, Colo.

PRESIDENT IRONS: Are there other nominations? . . . If not, the Chair will entertain a motion that the Secretary be asked to cast a ballot for these nominees.

DR. WALTER E. VEST: I so move.

DR. A. C. GRIFFITH: I second the motion.

. . . The motion was put to a vote and carried, and Executive Secretary Loveland cast the ballot. . . .

DR. BREED (Continuing): The following men are nominated for election to the Board of Regents:

Term Expiring 1947

Walter B. Martin, Norfolk, Va.
William S. Middleton, Madison, Wis.
James E. Paullin, Atlanta, Ga.
LeRoy H. Sloan, Chicago, Ill.
George F. Strong, Vancouver, B. C., Canada

PRESIDENT IRONS: Are there other nominations? . . . If not, the Chair will entertain a motion that the Secretary cast a ballot for each of the nominees for Regents.

DR. VEST: I so move.

. . . Motion was seconded by several, put to a vote and carried, and Executive Secretary Loveland cast the ballot for their unanimous elections. . . .

DR. BREED (Continuing): The following men are nominated for election to the Board of Governors:

Term Expiring 1945

Ward Darley, Denver .....COLORADO

Term Expiring 1946

J. Edwin Wood, Jr., University .....VIRGINIA

Term Expiring 1947

Fred W. Wilkerson, Montgomery ...ALABAMA
Fred G. Holmes, Phoenix .....ARIZONA
Lewis B. Flinn, Wilmington .....DELAWARE
T. Z. Cason, Jacksonville .....FLORIDA
Glenville Giddings, Atlanta .....GEORGIA
Samuel M. Poindexter, Boise .....IDAHO
Walter L. Palmer, Chicago .....(Northern) ILLINOIS
C. W. Dowden, Louisville .....KENTUCKY
Eugene H. Drake, Portland .....MAINE
Wetherbee Fort, Baltimore .....MARYLAND
John G. Archer, Greenville .....MISSISSIPPI
Ernest D. Hitchcock, Great Falls ...MONTANA
Robert O. Brown, Santa Fe .....NEW MEXICO
Asa L. Lincoln, New York .....(Eastern) NEW YORK
A. B. Brower, Dayton .....OHIO
Homer P. Rush, Portland .....OREGON
M. D. Levy, Houston .....TEXAS
Elmer L. Sevringhaus, Madison ....WISCONSIN
Ramon M. Suarez, San Juan .....PUERTO RICO
John W. Scott, Edmonton .....ALBERTA, BRITISH COLUMBIA, MANITOBA, SASKATCHEWAN

PRESIDENT IRONS: Are there additional nominations from the floor? . . . If not, the Chair will entertain a motion that the Secretary be instructed to cast a ballot for each of these nominees.

DR. CHARLES T. STONE: I so move.

DR. VEST: I second the motion.

. . . The motion was put to vote and carried, and the Executive Secretary cast the ballot for their unanimous elections. . . .

PRESIDENT IRONS: The Chair asks Dr. Charles T. Stone, of Texas, and Dr. Charles F. Tenney, of New York, to escort the newly elected President-Elect to the platform.

. . . The audience arose and applauded as President-Elect David P. Barr was escorted to the Rostrum. . . .

PRESIDENT-ELECT BARR: Mr. President, Fellows of the College, it would be superfluous and trite for me to tell you that I appreciate the very great honor of being made President-Elect of the College. I have had the privilege of serving as Regent for many years, and during that time I have seen many developments and astonishing growth in the College. I have seen no less than fifteen able men serve as President. I have seen each man labor for the College and each make his contribution toward its development and progress. I, therefore, have a realization, both of the honor and of the responsibility. It is my wish that I may serve well and my hope that I may be worthy of my predecessors and of this great College. (Applause.)

PRESIDENT IRONS: The Chair would suggest that we all join in an expression of appreciation of the services of Dr. Paullin and of Dr. LeRoy H. Sloan, the local Chairman, and of all those who have participated in the arrangements for this meeting. The Chair will entertain a motion of that sort.

DR. TENNEY: I so move.

DR. STONE: I second the motion.

. . . The motion was put to vote and enthusiastically carried. . . .

PRESIDENT IRONS: There is no further business, and I declare the meeting adjourned.

Adjournment

Attest: E. R. LOVELAND,
Secretary